Vol. 129. No. 2 AUGUST, 1928 Price 25 Cents

AMERICAN GAS JOURNAL

Library of Congress
A[illegible] 25 [illegible]28
[illegible] Deposit

Established 1859 *Pioneer of the Gas Industry*

Including · GAS INDUSTRY · Est. 1900 ·

THE PIONEER

WATER
GAS
GENERATOR
FUEL

BOONE-CHILTON

BOONE COUNTY COAL CORP.
BULLITT BUILDING PHILADELPHIA

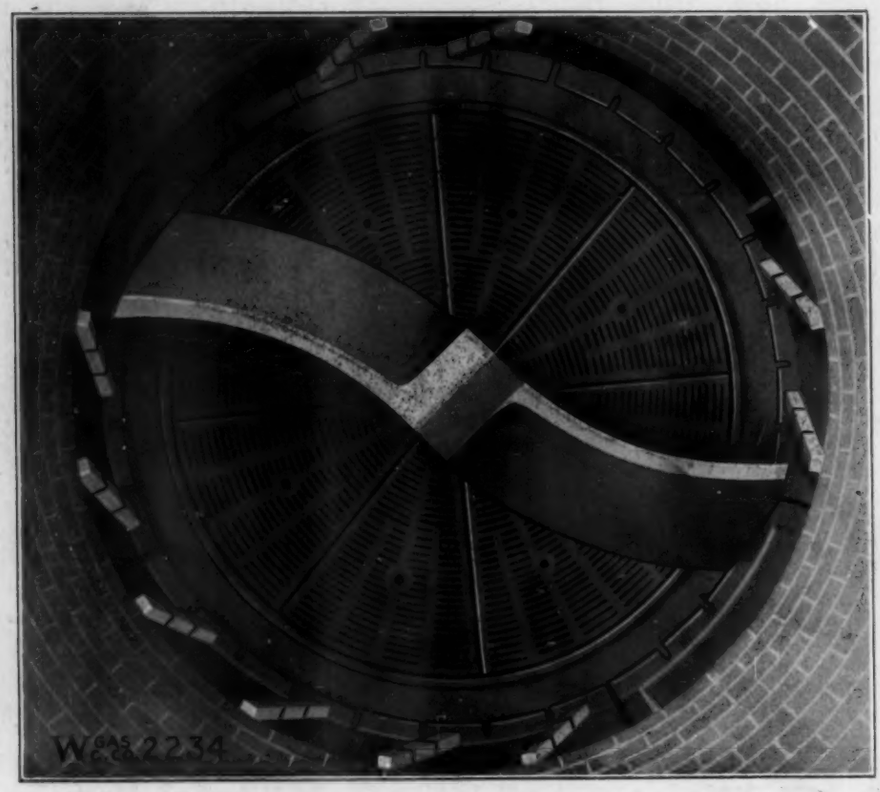
A Clean, Active, Uniform Fire Bed in Your Generators

This much-sought-for condition in your generators can be easily obtained with a consequent elimination of clinkering labor, reduced oil consumption, saving of fuel, low maintenance costs and the production of a higher grade of blue gas, if your machines are equipped with the

A-B-C SELF-CLINKERING GENERATOR BASE

The statement above is not based on theory, but from the result of over two years' continuous service under actual plant operation.

It's All in the Agitating Beam!



This hollow, water-cooled cast steel beam revolving in a horizontal plane over the grate, continuously and positively removes the ash and imparts in the lower portion of the active fuel bed a motion that insures each horizontal cross-section will be uniform in density and temperature.

Furthermore, this beam precludes the formation of large clinkers in the fuel bed and the clinkering of side walls and keeps the center of the fuel bed in a loosened, active condition.

A study of the accompanying plan view of Beam will give a faint idea of how the beam accomplishes this, but a complete descriptive catalog, which can be had for the asking, will describe its operation in detail and show many other unique advantages of the A-B-C Self-Clinkering Generator Base, that will result in big economies and increase the profit on the send-out.

It will pay you to write for further details

THE WESTERN GAS CONSTRUCTION CO.

FORT WAYNE, INDIANA

AMERICAN
GAS JOURNAL
Established 1859 *Pioneer of the Gas Industry*
Including GAS INDUSTRY Est. 1900.

Published Monthly by American Gas Light Journal, Inc., 33 Park Place, New York, N. Y.

S. G. KRAKE, *President and Treasurer* H. M. RILEY, *Editor* A. M. GLEASON, *Secretary*

R. S. McBRIDE, *Consulting Editor*—Washington, D. C.

Vol. 129. No. 2 **August, 1928** **Whole Number 3656**

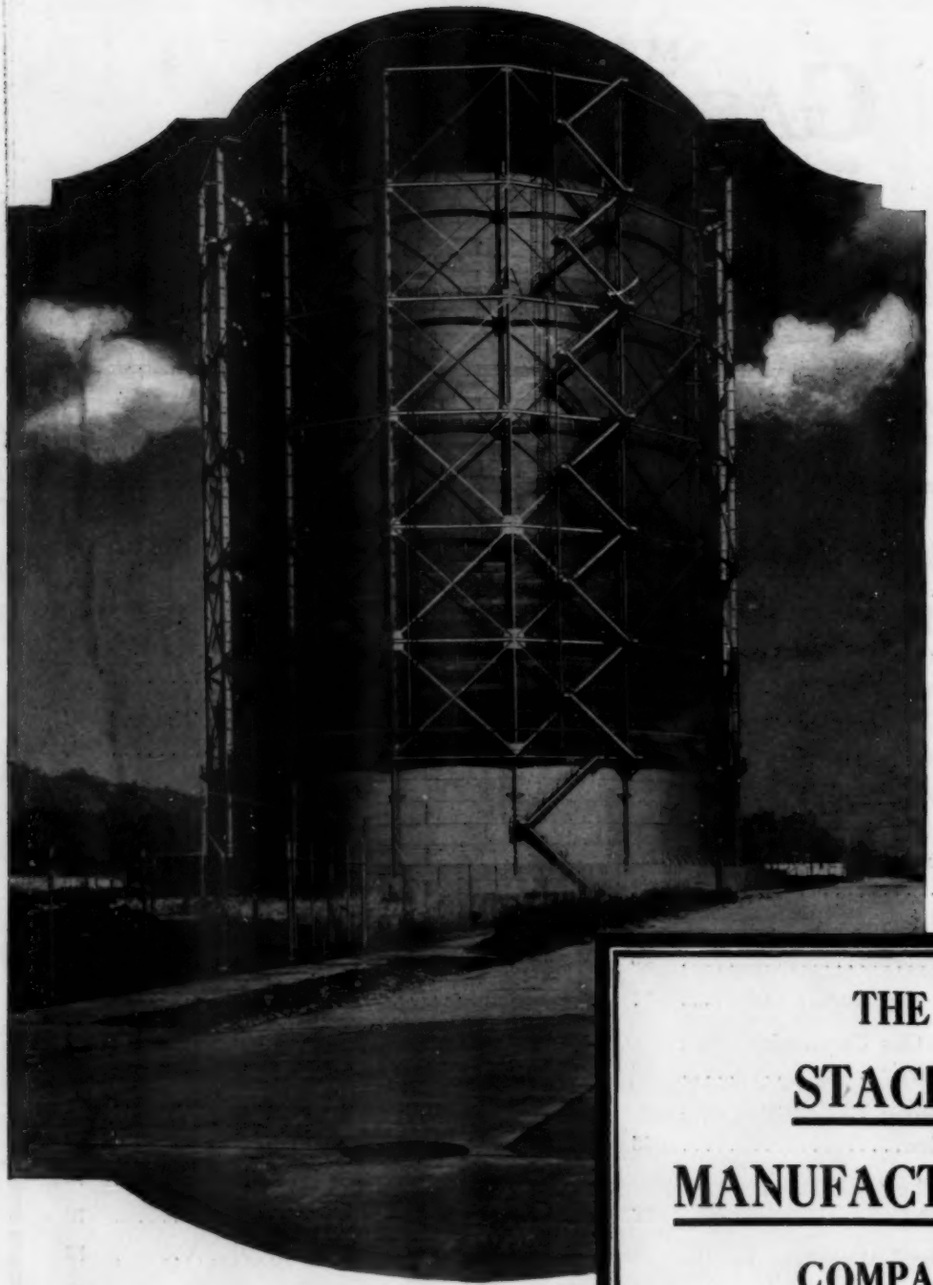
TABLE OF CONTENTS

Editorial 23
Planning the Advertising Budget — By Henry Obermeyer 27
An Analysis and Classification of Wage Systems—By J. J. Berliner..... 30
Careful Operation of Gas Wells Brings Interesting Discoveries — By H. F. Beardmore 34
Smelling Out Gas Leaks—By Frank H. Williams 36
Oxide Purification—By Gustav Offe..... 37
Office Methods in Gas Companies—Part XI—By G. L. Harris..... 40
Menace of Government Competition—By Philip H. Gadsden..... 43
Pipe Joints and Their Characteristics—By H. Y. Carson..... 46
Technical and General Miscellany for the Busy Gas Man..... 49
Matlack's Merchandising Memoranda.... 52
Colored Ranges and the Cooking Load—By Nina Wilson Badenoch..... 59
Supplanting Artificial Gas with Natural Gas—By J. B. Dillon..... 60
Window Display that Does Not High-Pressure the Prospect—By Ray Martin 61
Some Pertinent Facts on Gas Versus Electricity for Cooking..... 62
The Important Factor—By F. W. Steere. 64
Newspaper Ads Make Clean Sweep of Prizes 65
Report of General Nominating Committee 65
Public Utilities Advertising Assn. Elects J. C. Barnes, President..... 66
Equipment News 69
Book Review 70
Trade Catalogs 70
News of the Gas Industry..... 72
Personals 81
Trade News 82

AMERICAN GAS JOURNAL, August, 1928. Vol. 129. No. 2. Published Monthly by American Gas Light Journal, Inc., New York, N. Y. Entered as second-class matter, January 1, 1917, at the post-office of New York, N. Y., under the Act of March 3, 1879.

Subscription $2.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada $3.00; foreign $4.00. Single copies 25 cents.

INDEX TO ADVERTISERS, PAGE 111



3,000,000 Cu. Ft. 5 Lift Gas Holder
Built for
The Nassau & Suffolk Lighting Co.,
Long Beach, Long Island

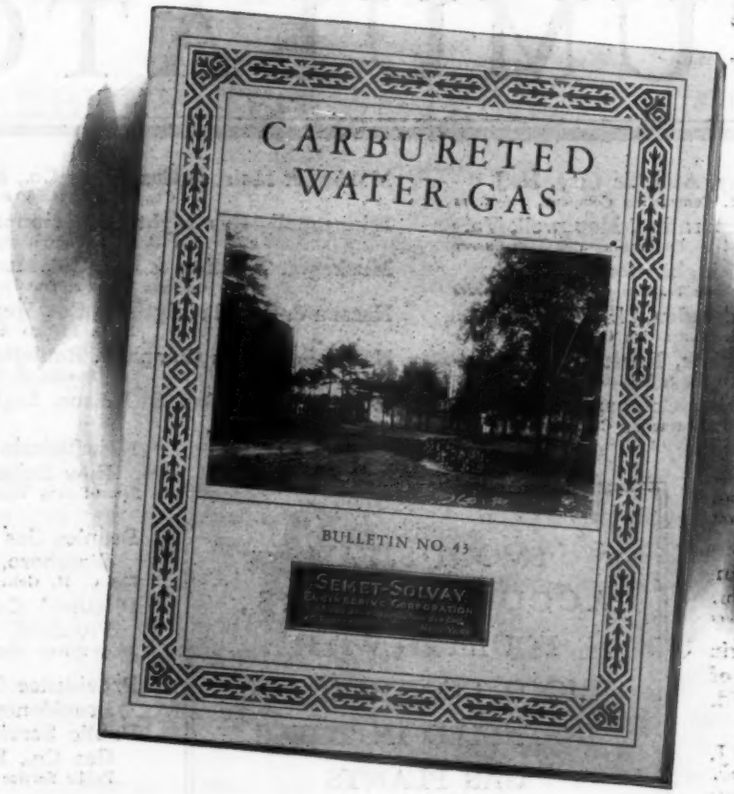
77 Years of Service to the Gas Industry

THE
STACEY
MANUFACTURING
COMPANY

CINCINNATI, OHIO

NEW YORK OFFICE
52 Vanderbilt Ave.

GET THIS BULLETIN



Our newest Bulletin, No. 43, on Carbureted Water Gas, traces the development of water gas manufacture to its present position as a highly efficient and desirable method of volume production.

Operating refinements which greatly increase capacity—reduce costs—avoid danger of stream pollution—improve oil results—increase the safety factor in manufacture — conserve steam production — reduce specific gravity when gases must be mixed—are described with full detail.

Every gas engineer needs a copy of Bulletin No. 43 to become up-to-date on water gas practice. We will be pleased to send one on request.

SEMET-SOLVAY
ENGINEERING CORPORATION
Division Allied Chemical and Dye Corp.
40 RECTOR ST. NEW YORK

SMOOT STEAM ACCUMULATOR

Atlantic City Gas Company, Atlantic City, N. J.
The U. G. I. Contracting Company, *Engineers*

Atmospheric Nitrogen Corporation, Hopewell, Va.
Semet-Solvay Engineering Corp., *Engineers*

Binghamton Gas Works, Binghamton, N. Y.
American Light & Traction Company, *Engineers*

Camden Coke Company, Camden, N. J.
The U. G. I. Contracting Company, *Engineers*

City Gas Company of Norfolk, Norfolk, Va.
Stone & Webster, Inc., *Engineers*

Coal Products Manufacturing Company, Joliet, Ill.
The U. G. I. Contracting Company, *Engineers*

Concord Gas Company, Concord, N. H.
The U. G. I. Contracting Company, *Engineers*

Connecticut Power Company, New London, Conn.
The U. G. I. Contracting Company, *Engineers*

Consolidated Gas, Electric Light & Power Co. of Baltimore, Baltimore, Md.

County Gas Company, Atlantic Highlands, N. J.
The U. G. I. Contracting Company, *Engineers*

Detroit City Gas Company, Detroit, Mich.
American Light & Traction Company, *Engineers*

SMOOT STEAM ACCUMULATORS, EQUIPPED WITH SMOOT CONTROL, ARE INSTALLED IN THESE GAS PLANTS

Fall River Gas Works, Fall River, Mass.
Stone & Webster, Inc., *Engineers*

Florida Power & Light Company, Lakeland, Fla.

Georgia Railway & Power Co., Atlanta, Ga.
The U. G. I. Contracting Company, *Engineers*

Grand Rapids Gas Light Co., Grand Rapids, Mich.
American Light & Traction Company, *Engineers*

Haverhill Gas Light Company, Haverhill, Mass.
Stone & Webster, Inc., *Engineers*

Hudson Valley Coke & Products Co., Troy, N. Y.
Semet-Solvay Engineering Corp., *Engineers*

Hyde Park Gas Company, Scranton, Pa.

Iroquois Gas Corporation, Buffalo, N. Y.

Lancaster Gas Light & Fuel Co., Lancaster, Pa.

Long Island Lighting Company, Bay Shore, L. I.
E. L. Phillips & Company, *Engineers*

Madison Gas & Electric Company, Madison, Wis.
American Light & Traction Company, *Engineers*

Malden & Melrose Gas Light Co., Malden, Mass.
Charles H. Tenney & Company, *Engineers*

Minneapolis Gas Light Co., Minneapolis, Minn.
The U. G. I. Contracting Company, *Engineers*

Muskegon Traction & Ltg. Co., Muskegon, Mich.
American Light & Traction Company, *Engineers*

Nassau & Suffolk Lighting Co., Hempstead, L. I.
E. L. Phillips & Company, *Engineers*

North Penn Gas Company, Roulette, Pa.
Stevens & Wood, Inc., *Engineers*

New Bedford Gas & Edison Light Co., New Bedford, Mass.

New Britain Gas Light Co., New Britain, Conn.
Semet-Solvay Engineering Corporation, *Engineers*

Peoples Gas Company, Glassboro, N. J.
The C. H. Geist Company, *Engineers*

Pittsfield Coal Gas Co., Pittsfield, Mass.
Semet-Solvay Engineering Corporation, *Engineers*

Providence Gas Company, Providence, R. I.

Public Service Electric & Gas Co., Harrison, N. J.
Public Service Production Company, *Engineers*

Public Service Electric & Gas Co., Paterson, N. J.
The U. G. I. Contracting Company, *Engineers*

Queensboro Gas & Electric Co., Far Rockaway, L. I.
E. L. Phillips & Company, *Engineers*

St. Joseph Gas Company, St. Joseph, Mo.
American Light & Traction Company, *Engineers*

The Brooklyn Union Gas Co., Brooklyn, N. Y.
The Bartlett Hayward Company, *Engineers*

The Pawtucket Gas Company, Pawtucket, R. I.
Stone & Webster, Inc., *Engineers*

The Tampa Gas Company, Tampa, Fla.
The U. G. I. Contracting Company, *Engineers*

Washington Gas Light Company (East Plant), Washington, D. C.

Washington Gas Light Company (West Plant), Washington, D. C.

Wilmington Gas Company, Wilmington, Del.
The U. G. I. Contracting Company, *Engineers*

SMOOT ENGINEERING CORPORATION
136 Liberty Street **New York**

SMOOT CONTROL

U. G. I.
MECHANICAL GRATE GENERATOR
for
CARBURETTED WATER GAS APPARATUS

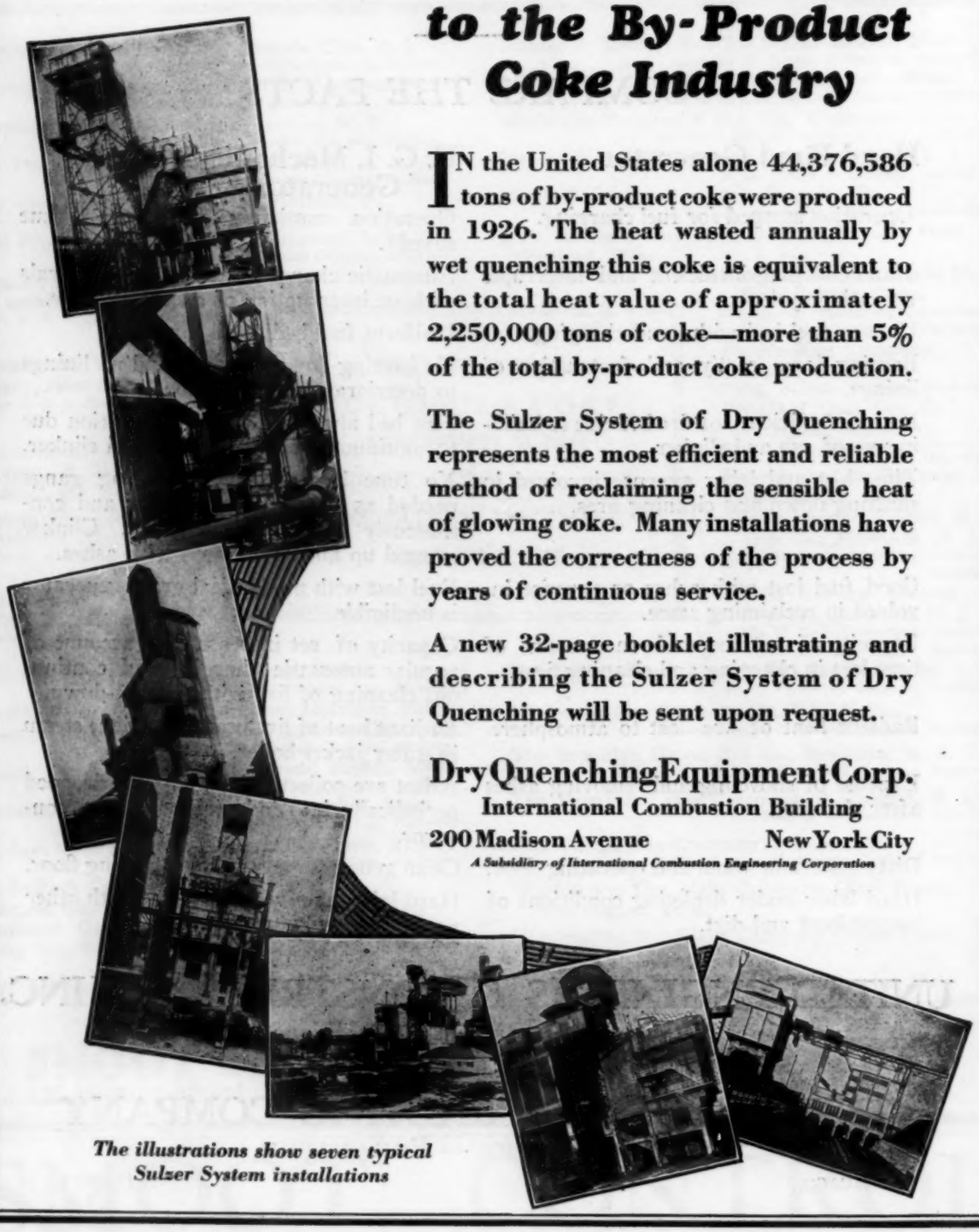
COMPARE THE FACTS

Hand Fired Generator	U. G. I. Mechanical Grate Generator
Operation stopped for fuel charging.	Operation continuous (Charging time saved).
Hand charging inefficient and interrupts operating cycle.	Automatic charging at regular intervals without interruption of operating cycle.
Uneven fuel bed with hand charging.	Uniform fuel bed at all times.
Barring-down costly and destructive of linings.	No barring-down required and no linings to deteriorate at clinker zone.
Lessened efficiency of fire bed due to building up of ash and clinker.	Fire bed always in healthy condition due to continuous removal of ash and clinker.
Time lost and labor expense involved in shutting down and cleaning fires.	No time lost and no clinkering gangs needed as fire is automatically and continuously cleaned mechanically. Clinker ground up and discharged with ashes.
Good fuel lost with ashes or expense involved in reclaiming same.	Fuel lost with mechanical grate generator is negligible.
Capacity of set lowered on account of time lost in charging and cleaning fires.	Capacity of set increased on account of regular automatic charging and continuous cleaning of fire without shut-down.
Radiant heat of fire lost to atmosphere.	Radiant heat of fire used to produce steam in water jacket boiler.
Expense of shoveling and removing ashes after cleaning.	Ashes are collected in a bin and dropped periodically into industrial car or a conveyor.
Dirty generator room and operating floor.	Clean generator room and operating floor.
Hard labor under depleting conditions of intense heat and dirt.	Hard labor eliminated together with other poor working conditions.

UNITED ENGINEERS & CONSTRUCTORS INC.
DWIGHT P. ROBINSON, President
Succeeding
THE U. G. I. CONTRACTING COMPANY
PRINCIPAL OFFICE — PHILADELPHIA
CHICAGO ATLANTA

Dry Quenching

—an Economic Necessity to the By-Product Coke Industry



IN the United States alone 44,376,586 tons of by-product coke were produced in 1926. The heat wasted annually by wet quenching this coke is equivalent to the total heat value of approximately 2,250,000 tons of coke—more than 5% of the total by-product coke production.

The Sulzer System of Dry Quenching represents the most efficient and reliable method of reclaiming the sensible heat of glowing coke. Many installations have proved the correctness of the process by years of continuous service.

A new 32-page booklet illustrating and describing the Sulzer System of Dry Quenching will be sent upon request.

Dry Quenching Equipment Corp.
International Combustion Building
200 Madison Avenue New York City
A Subsidiary of International Combustion Engineering Corporation

The illustrations show seven typical Sulzer System installations

The UNIT TYPE

HORIZONTAL GAS *and* COKE OVENS

For Small and Medium Size Gas Plants

The UNIT TYPE — Horizontal Gas and Coke Ovens were developed primarily to meet the requirements of plants having a daily capacity of 250 M. cu ft. and upwards.

TOTAL PLANT LABOR—24 HOURS—FIVE MEN

The above illustration shows these Ovens now in full operation in Albion, Michigan.

Every detail was conceived and built with characteristic "IECO" thoroughness by which increased production and economical operation, with the minimum of labor, are obtained.

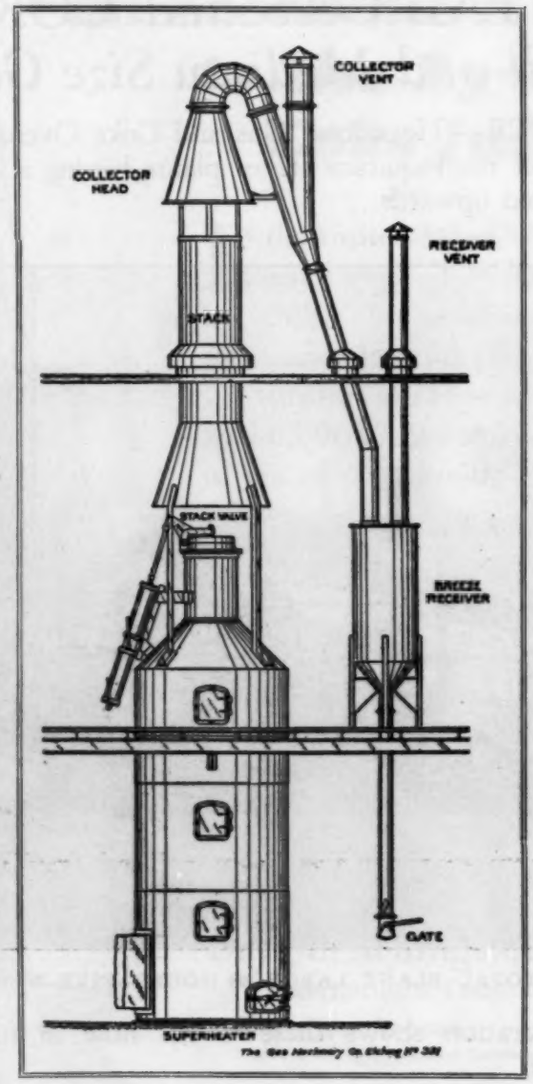
Write for Special Bulletin and full information regarding plant of Unit Type now operating in Albion, Michigan.

THE IMPROVED EQUIPMENT COMPANY

24 STATE STREET *Engineers-Builders* **NEW YORK CITY**

BREEZE and DUST COLLECTORS

For Stacks of Water Gas Apparatus



159 SETS INSTALLED

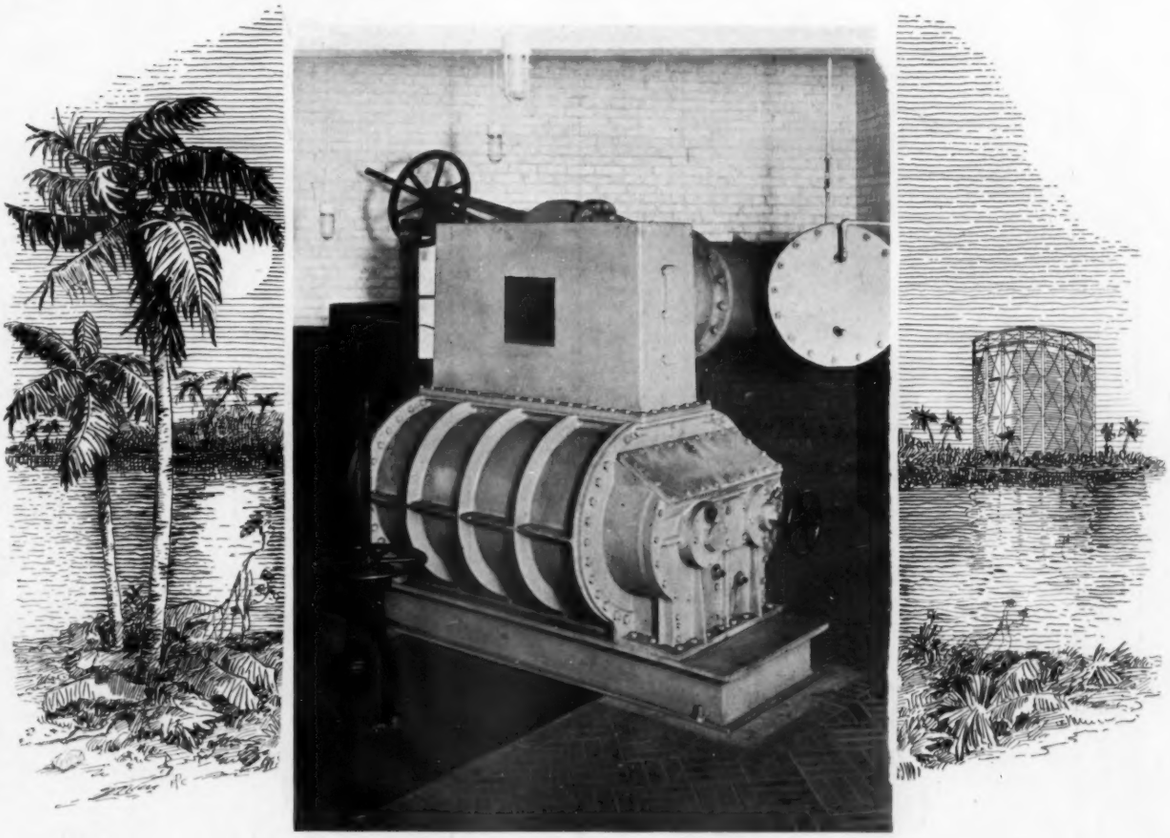
Abatement of Breeze and Dust Nuisance
Elimination of Complaints by Authorities
Cleaner Holder Cups, Yard and Plant

THE GAS MACHINERY COMPANY

CLEVELAND, OHIO

Tuck it Away in a Corner

That is just what the Tampa Gas Company did with the 250,000 cu. ft. Connersville Rotary Displacement Meter shown here.



Special structures are not necessary to house Connersville Meters, even in the larger sizes. Comparatively small space is required in an existing room.

This is one advantage of Connersville Meters that will appeal to companies with limited space. Other characteristics are: Ease of Installation, Low Maintenance Cost, Simplicity, Ruggedness, Freedom from the Need of Frequent Adjustment, and, above all, Dependable Accuracy of Results.

It is to your best interest to learn more of these Meters; send for complete data, or consult with our nearest office.

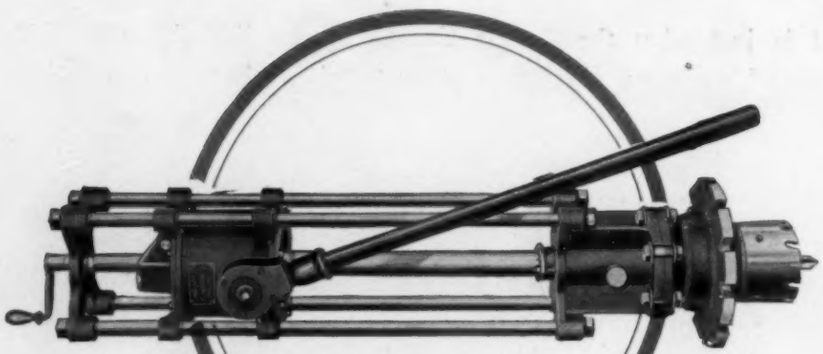
THE CONNERSVILLE BLOWER COMPANY

12th Street and Columbia Avenue, Connersville, Indiana

Sales Offices: **1454 Monadnock Block, Chicago** · **604 Chamber of Commerce Bldg., Pittsburgh** · **Eastern Service Co., Boston** · **114 Liberty St., New York**

CONNERSVILLE

Blowers • Gas Pumps • Meters • Cycloidal Pumps



Mueller "C"
Drilling Machine

Quick—Efficient—Easy

for making lateral or branch connections to gas mains

Stripped of every pound of metal that can be spared without reducing the wearing qualities—the Mueller "C" Drilling Machine can easily be handled by two men without straining, and one man can operate it if necessary. Scientifically designed to handle heavy duty work, the Mueller quality that is a part of this machine, as it is of EVERY Mueller product, assures faithful service and lasting satisfaction.

This machine is furnished with a complete set of drills and is shipped in a strong iron-bound chest. Write for catalog and prices.

All working parts are encased in a dustproof housing and run in heavy grease. Automatic feed prevents over-feeding of drill and a single main shaft serves for cuts of all sizes. The Mueller "C" Drilling Machine is for making lateral or branch connections from 2 to 8 inches in pipe 4 to 48 inches.

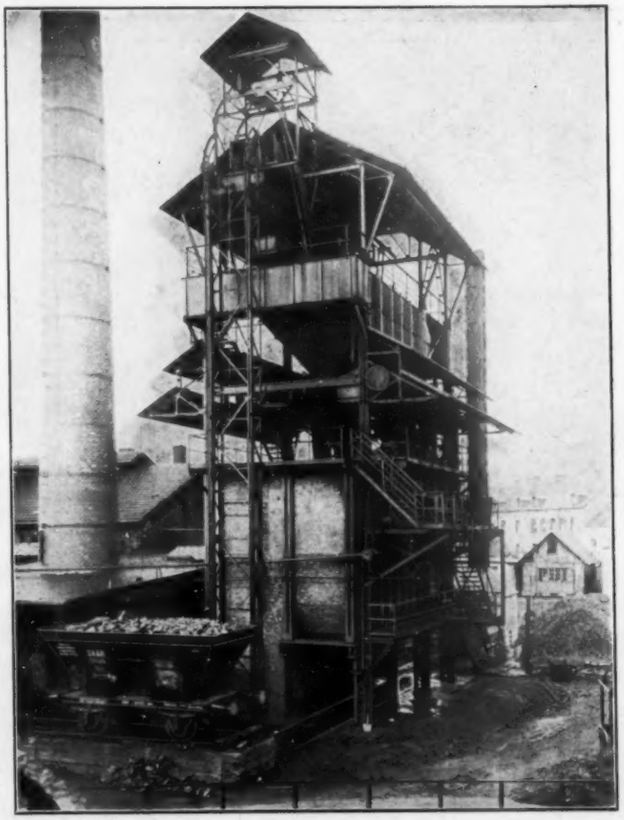
MUELLER CO. (*Established* 1857) **Decatur, Ill.**

Branches: New York, Dallas, San Francisco, Los Angeles

Canadian Factory: MUELLER, Limited, Sarnia

MUELLER

"INDUGAS"
VERTICAL CHAMBER OVENS
With Water-sealed Drop Door
INTERMITTENT TYPE



Minimum Labor
Low First Cost

The annual operating reports of the Association of Swiss Gas Plants disclose that the "INDUGAS" ovens produce the largest yields of gas per ton of coal.

The following table shows the actual average yields from coal containing less volatile matter than the average American coal:

City	Time	Yield cu. ft. per net ton	Heating value B.t.u. (gross)
Baden, Switzerland	4 years average	14075	560
Olten, Switzerland	2 " "	13317	570
Friedrichshafen, Germany	4 " "	16045	515

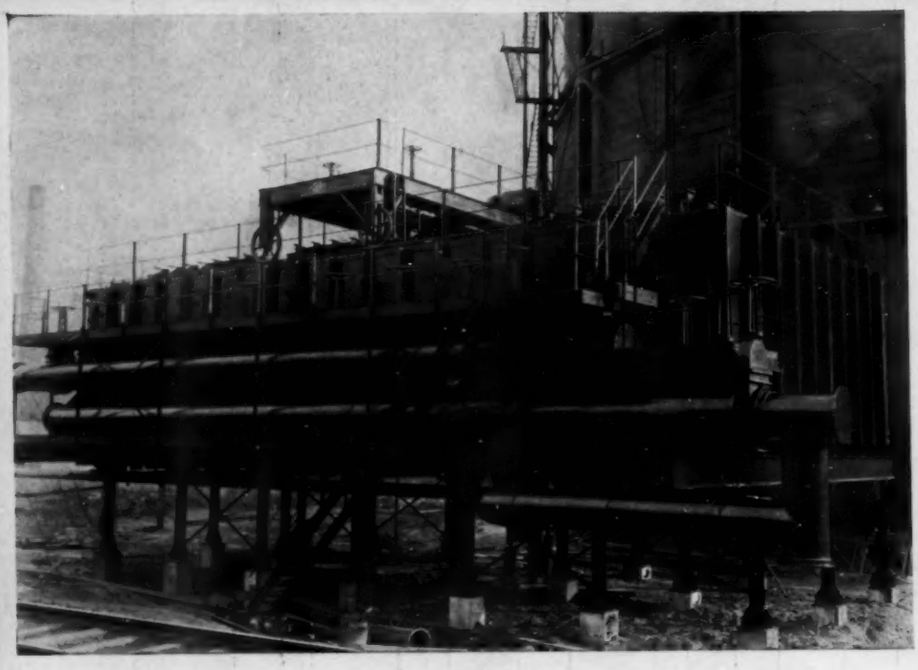
There's a Reason

Full information, layouts and estimates gladly furnished

CARL STILL CORPORATION

114 LIBERTY STREET, NEW YORK

STURDY
CONSTRUCTION PAYS

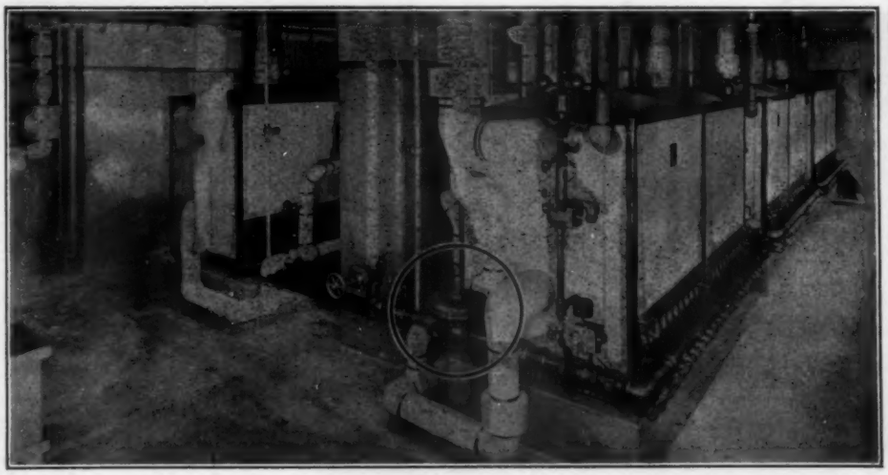


Three 20′ 0″ x 30′ 0″ x 13′ 0″ High Purifier Boxes
for
The Pennsylvania Gas & Electric Company, York, Penna.

This contract finished a two-year building program at York, which also included:—A 100,000 cu. ft. holder, a 54,000 cu. ft. holder, and a 2,000,000 cu. ft. holder.
"There is always a satisfaction in repeat orders."

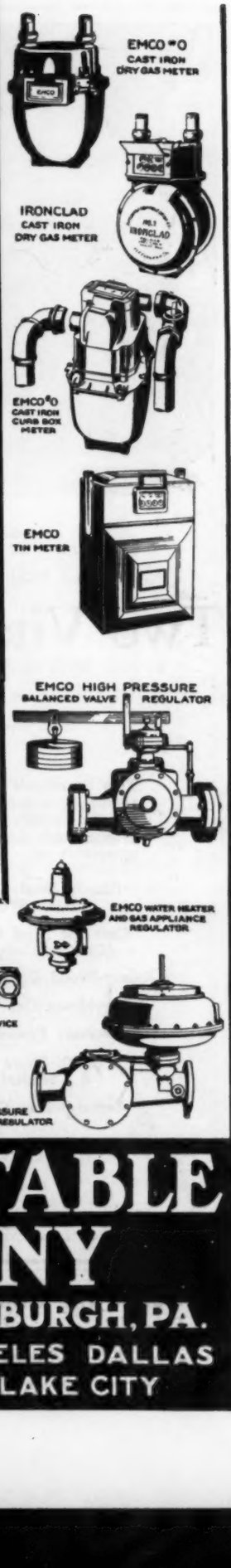
INTEGRITY
FAIR C-K CO DEALING
SERVICE

CRUSE-KEMPER CO.
AMBLER, PA.
ENGINEERS & CONTRACTORS
BUILDERS OF STURDY GAS HOLDERS
PURIFIERS, SCRUBBERS, CONDENSERS, TANKS, ETC.



EMCO Regulators on The World's Largest Heating Installation

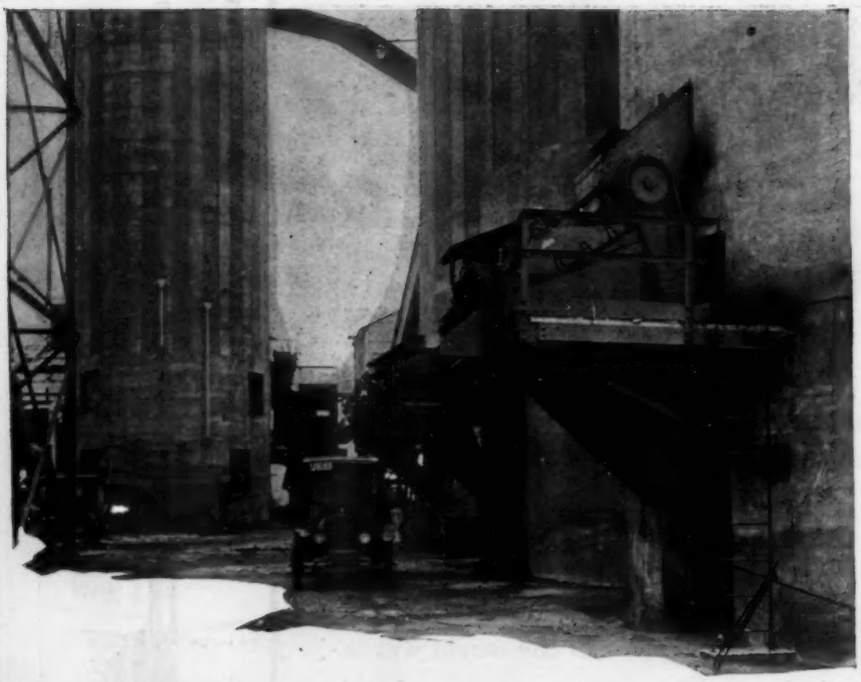
WHEN the largest gas heating plant in the world was installed recently in Boston, Mass., it was equipped with EMCO Water Heater and Gas Appliance Regulators. A large majority of the makers of nationally known heating systems use EMCO Regulators as standard equipment. Progressive manufacturers of gas appliances and equipment realize that the accuracy and reliability of EMCO Pressure Regulators will insure good performance on any type of gas equipment.



PITTSBURGH EQUITABLE METER COMPANY

MAIN OFFICE AND WORKS PITTSBURGH, PA.

NEW YORK CHICAGO COLUMBIA, S.C. LOS ANGELES DALLAS TULSA SEATTLE KANSAS CITY SALT LAKE CITY



Truck loading station at the screening plant of the Consumers Power Company in Flint, Michigan. Of particular interest are the Roll Feeders and the VIBREX Screens. These together with all the coal and coke handling systems were installed by the Robins Company.

Two Vital Requirements for Coke Screening Plants

The experience of Robins engineers in designing coke screening plants is evidenced by the work done for such companies as:

Illinois Steel Company, (Joliet Works)

Carnegie Steel Company, (Clairton Coke Plant)

Rainey-Wood Coke Corporation

Providence Gas Company

Consumers Power Company

North Shore Coke & Chemical Co.

Semet-Solvay Company

TWO requirements, more than all others, stand out as vital to efficient coke screening operations

These are—(1) having the right screens and crushers in just the right places; (2) keeping handling at a minimum.

But to fulfill thesse requirements may not be as easy as it sounds because often they conflict.

Yet experience would find the way to reconcile conflicting factors and provide compact, well-balanced operations.

Experience—PRACTICAL EXPERIENCE—is what Robins engineers would bring to any company planning to modernize or build a new coke screening plant.

ROBINS CONVEYING BELT CO.

15 Park Row, New York, N. Y.

Chicago Boston Philadelphia Pittsburgh Los Angeles

Agents in Other Principal Cities

Conveying and Elevating Equipment
Stocking and Reclaiming Systems
Crushing and Screening Equipment

MATERIAL HANDLING ROBINS EQUIPMENT

MANNING, MAXWELL & MOORE, Inc.

buys the

AMERICAN SCHAEFFER & BUDENBERG CORPORATION

Manning, Maxwell & Moore, Inc., has purchased the entire business of the American Schaeffer & Budenberg Corporation, including good-will, trade names, trade marks, patents, etc., and it will merge that business with the business of its subsidiary company, Consolidated Ashcroft Hancock Company, Inc.

Consolidated Ashcroft Hancock Company, Inc., which is owned exclusively by Manning, Maxwell & Moore, Inc., is the operating company handling the manufacture and sales of their Steam Specialties business. This includes the well-known lines of Ashcroft Gauges, Consolidated Safety Valves, Hancock Valves, Inspirators, etc.

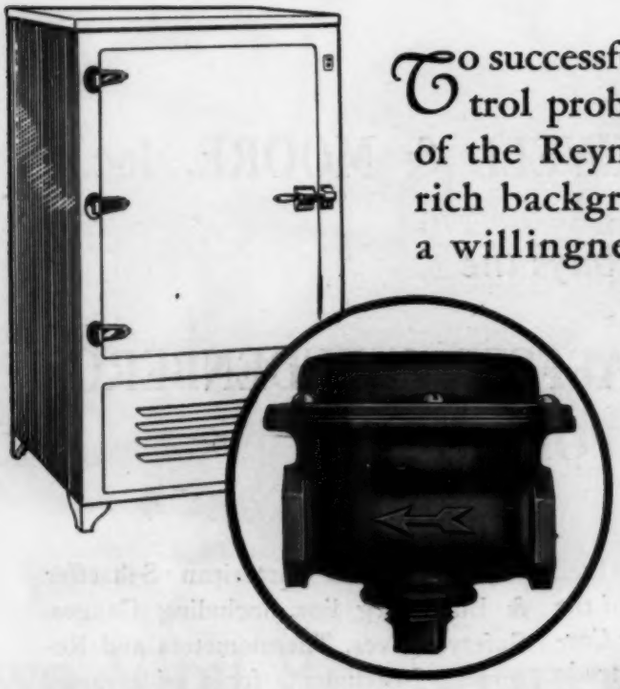
The complete American Schaeffer & Budenberg line, including Gauges, Safety Valves, Thermometers and Recording Instruments for a wide range of service, will be manufactured and sold in conjunction with Consolidated Ashcroft Hancock products.

A liberal constructive policy, involving more extensive research and development work of a scope impossible with either company when separately operated, has been adopted.

This merger places under one ownership the most important and meritorious line of Steam Specialties in the United States.

MANNING, MAXWELL & MOORE, Inc.
100 East 42nd Street, New York, N. Y.

{ Reynolds }



To successfully solve unusual gas control problems has been a privilege of the Reynolds Engineering Staff. A rich background of experience, plus a willingness to cooperate, makes Reynolds Products extremely desirable to any manufacturer requiring an efficient gas control device . . . A line or wire places our organization at your service.

Reynolds Products

for all kinds of Pressure Reduction—for either artificial or natural gas.

Governors—
- Intermediate Pressure
- Triple Outlet
- Holder
- Toggle Type Street

Regulators—
- High Pressure Service
- Low Pressure Service
- Intermediate Pressure
- High Pressure Line
- Single and Double District Station

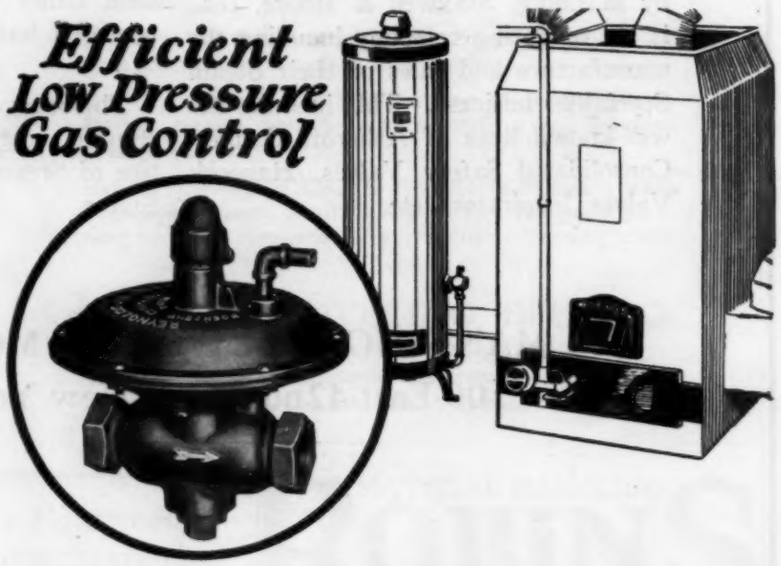
Valve—
- Automatic Quick-Closing
- Anti-Vacuum

Reynolds Gas Regulator Company
Anderson, Indiana

REPRESENTATIVES

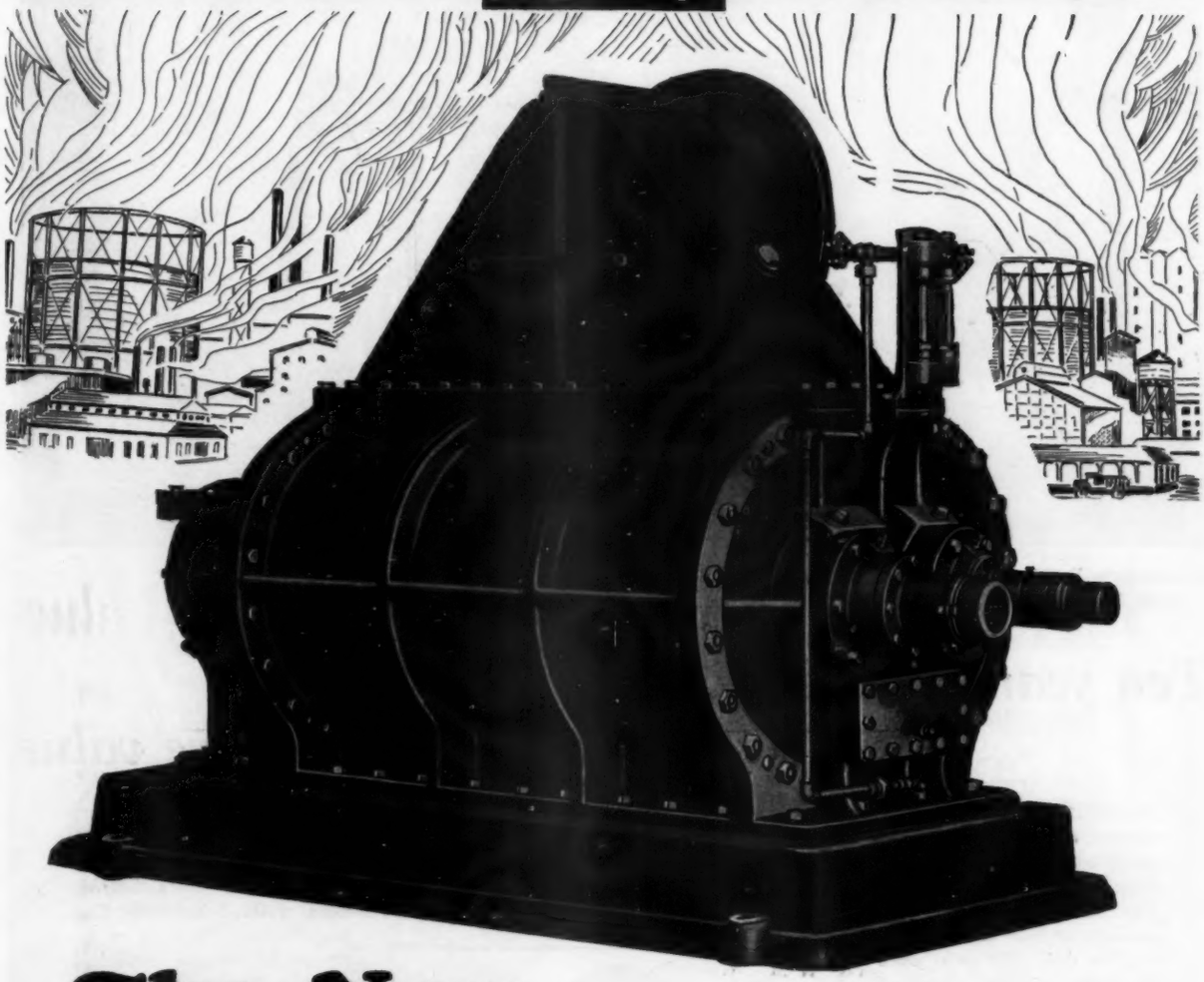
EASTERN SERVICE COMPANY, Boston, Mass.
THOS. C. CORIN, Detroit, Mich.
F. E. NEWBERRY, Avon, N. J.
GILLESPIE & SCHWAN, Inc., Dallas, Texas

Efficient Low Pressure Gas Control



RECOGNIZED LEADERSHIP IN GAS CONTROL SINCE 1892

ROOTS



The New ROOTS METER

Simplified design and greater accessibility are the two major features in the new Roots Meter.

Complete Information on Request

The P. H. & F. M. ROOTS CO.

CHICAGO
Peoples Gas Building

CONNERSVILLE, INDIANA

NEW YORK
120 Liberty Street

Originators of the Double Impeller Rotary Principle

Schenectady Railway Co. Bridge
over Mohawk River, N. Y.

Ten years between **Paintings** *without loss of protective value*

Electric railway operators probably know more about economical maintenance than most people. They certainly would not pay a higher price for Dixon's Silica Graphite Paint unless they could see very definite returns.

The Schenectady Railway Company furnishes a good example of how industrialists who buy their paint on a "years of service without repainting" basis, are standardizing. They have been users of Dixon's Silica Graphite Paints for many years. The bridge illustrated above is but one of three on which the average life of the protective coatings has been 10 years.

When you compare such service with that rendered by "average" paints, and when you remember that the labor cost of applying a cheap paint is the same as for a paint that will last two, three, four, and in some cases five times as long, the economy of buying the best—*Dixon's*—becomes very tangible.

The same long service which *Dixon's Silica Graphite Paint* has given on the bridges of the Schenectady Railway Company, in spite of extremes in weather conditions, vibration, dirt, and grit has been enjoyed by numerous gas plants where gases, fumes, steam, smoke, rust, and corrosion destroy the paint films and the iron, steel, and wooden surfaces beneath them.

Dixon's Silica Graphite Paint is made in 6 popular colors. We also supply an Aluminum-Graphite Paint, and a Red Lead-Graphite Primer. These are all first quality products. You cannot buy better paint, or more economical protection for all outdoor, and many indoor structures.

An answer to the question of high painting costs

Painting costs are high you say! Well, two-thirds of the cost of any industrial painting job is labor. If you can manage to paint less frequently paint costs will be very substantially reduced. Actual service data proves that Dixon's Silica Graphite Paint outwears cheaper paints many, many times. The full story is told in Booklet 231-B. Send for your copy today!

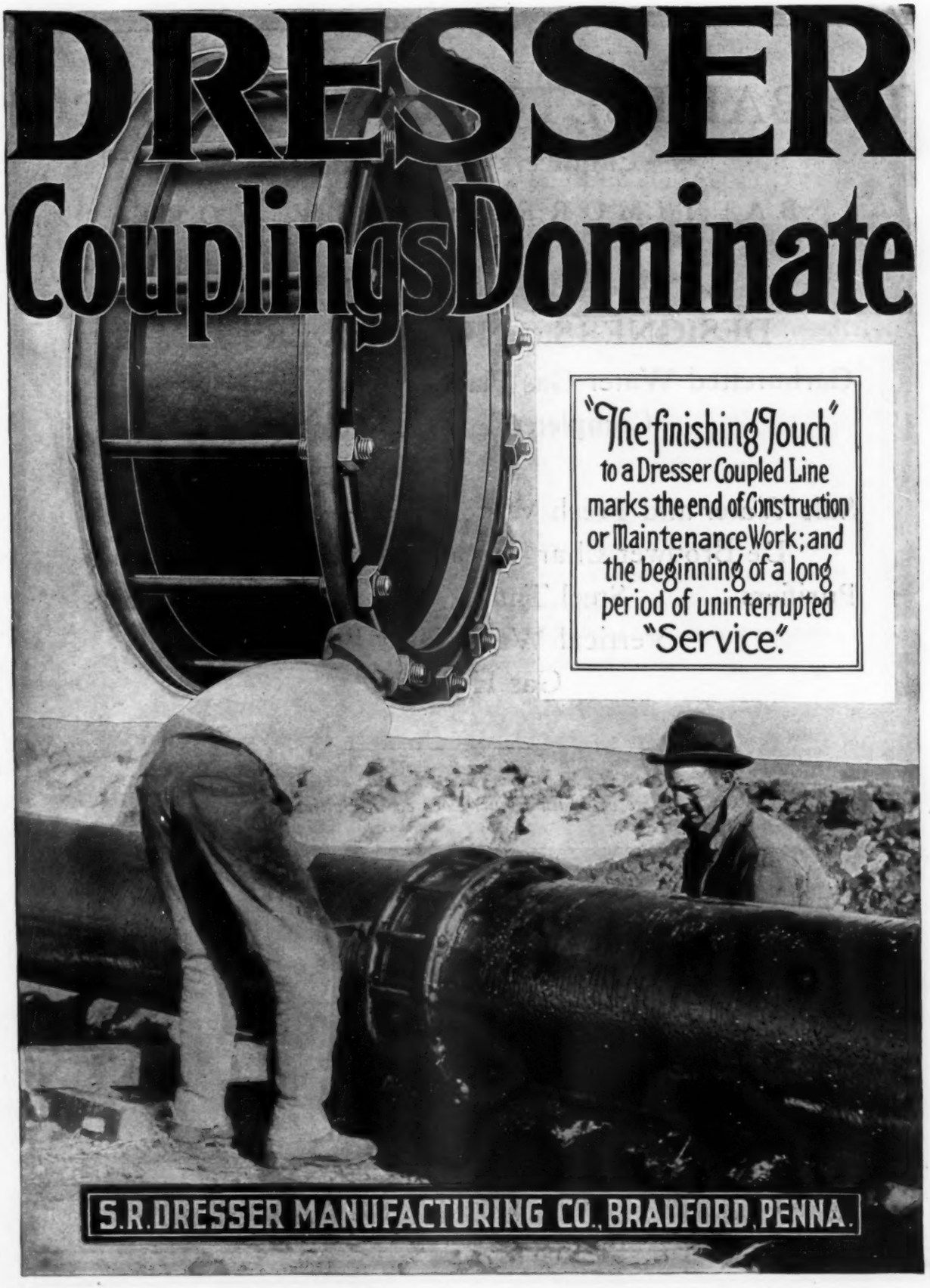
JOSEPH DIXON CRUCIBLE COMPANY
Established 1827
JERSEY CITY, NEW JERSEY

D X N
TRADE MARK

DIXON'S SILICA GRAPHITE PAINT

Adequate Protection at Minimum Ultimate Cost

DRESSER Couplings Dominate


"The finishing Touch"
to a Dresser Coupled Line
marks the end of Construction
or Maintenance Work; and
the beginning of a long
period of uninterrupted
"Service."
S.R. DRESSER MANUFACTURING CO., BRADFORD, PENNA.

The BARTLETT HAYWARD CO.

Engineers and Founders

BALTIMORE and NEW YORK

DESIGNERS AND BUILDERS OF:

Carburetted Water Gas Plants
Complete Coal Gas Plants
By-Products Plants
Salt Water and Fresh Water Condensers
De Brouwer Charging and Discharging Machines
Purifiers - Steel Tanks - Shaving Scrubbers
Vertical Waste Heat Boilers
Gas Holders

View of Main Plant, Located at Baltimore

AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry
Including GAS INDUSTRY Est. 1900.

HENRY M. RILEY, *Editor*

Bonuses Vs. Turnover

ENCOURAGEMENT in well doing is the finest disciplinarian. This is a principle long recognized in the training of children and a principle that of late is being recognized as equally potent in industry. The bonus tends to inspire good work, and most of all it keeps happy and enthusiastic the best workers. By reducing turnover and the costly losses incident to training inexperienced members of a staff, a well planned bonus system is an excellent investment.

THE bonus for superior accomplishment, for service above the average in faithfulness, speed, or skill, is, in fact, the most efficient human-engineering tool available to the industrial executive. However, many managers of gas undertakings have thought that the bonus plan was not applicable in their business because there is relatively little of piece work, except in the office divisions of a company. It is especially important, therefore, for the gas-man executive to study the underlying principles of bonus giving, as well as the practical application in one large gas company.

AMERICAN GAS JOURNAL commends to its readers the thought of a bonus system as a means for creating esprit de corps and over-all efficiency. In this issue and the next of the Journal are two articles which will make clear the underlying principles and one successful application of bonus giving. A thorough study of these articles, for adoption of the important ideas they contain, is urged.

Recarbonization of Coke Breeze

THE disposal of coke breeze in a coal-gas works is one of the serious problems of management. The custom is to use this fine coke for boiler fuel and often it serves very well for this purpose. But rarely is there a sufficient steam demand in a carefully managed plant to consume all of the breeze which modern high-speed handling of coke is likely to produce.

Lately there has developed, more or less simultaneously in several plants, a scheme for returning the coke breeze to the ovens thoroughly mixed with the crushed coal. With a high-volatile coal of strong coke-forming habit this practice is entirely satisfactory. The breeze becomes an integral part of the large pieces of coke during the period of recarbonization. Apparently it does not weaken the coke structure appreciably. And under this practice there is no breeze disposal problem, because there is no breeze made.

Where coke and gas plants find it a difficult matter to make their furnace and foundry coke of sufficient ruggedness to satisfy their customers, it may be that this practice will not be feasible of application. But certainly with strongly coking coals, and especially where household coke is the product sought, this scheme promises great things for the coal-gas manufacturer.

The Cooks And The Broth

GENERALLY SPEAKING, the ancient adage, "Too many cooks spoil the broth," is well-nigh universal in its application. If, however, there might be one exception to this truth it would possibly be concerned with the matter of advertising. This indispensable adjunct to the process of selling and marketing is many times best shaped and put in motion when a number of minds have contributed their ideas and passed upon its caliber and fitness.

It is virtually impossible to build and definitely measure the effects of advertising with even the barest semblance of mathematics. We know that a given amount of advertising goes out into a certain field and so and so many sales result. But an absolutely identical advertising effort at a later date and on the same potential buyer will give results at discouraging variance with those which obtained in the first case. The reason is that we are appealing to a medium which shows at times an alarming tendency to fickleness and recalcitrancy. That is, the human mind is subject to foolish excursions at irregular intervals which can in no wise be pre-reckoned.

Consequently the successful advertising man is ever on the alert to borrow the ideas of others and endeavor to reshape and mould them to his own particular problems. He recognizes the value of many minds contributing to the common cause.

It is quite apparent that an advertisement for furthering the sale of a gas range, say, in Leadville, would not be correct in toto for Philadelphia, for instance. But there might be the germ of an idea in the former that could be used to advantage in appealing to the prospects in the latter city. In turn the advertising suggestions and copy supplied each month by the American Gas Association while not claiming universal excellence in their application do nevertheless contain thoughts and suggestions well worth careful study and, at least, partial application to the particular case. Company members would seem to be standing in their own light in the event that they would consign this advertising ally to the waste basket before devoting some careful attention to the same.

As in the case with other businesses we can always stand an extra cook or two to season and stir our advertising broth for us.

A Practical Endorsement

WHEN AN OUT-AND-OUT course in Gas Engineering was started some years ago at the Johns Hopkins University there were doubtless many educators and gas men who thought that the line was being drawn too fine; reasoning that prospective entrants into the field of Gas Engineering were sufficiently equipped when they had completed a course in Chemical or Mechanical Engineering or some other allied technical course.

There is no reason why the young graduate in Mechanical or Chemical Engineering cannot enter the gas business and carry on with a high degree of success because obviously he has been able to do this in the past. But we somehow feel that his work and efforts will be facilitated and lightened if he tackles the new job with the background of a course that has been dominated and shaped in what we might term an atmosphere of gas.

Moreover, there are no restrictions which would prevent the graduate in Gas Engineering from entering many other fields of technical work if he be so inclined.

It is interesting to note that other recognized institutions of technical education are giving ear to this movement and the fact that the graduates have been placed in what give promise to be altogether worthwhile positions in the Industry, constitutes a practical endorsement of the idea.

These courses in out-and-out Gas Engineering should receive whatever help and encouragement the Industry can afford.

Exhibit Time
At Atlantic City

THERE is still time for those who sell things to gas men to arrange for an exhibit at the Atlantic City convention of the American Gas Association. The membership of the Association is delighted to know that this exhibit promises to be another record breaker. There has been a growth in the number and the service value of exhibits every year since the founding of the Association. This trend should continue. There is no other place at which the gas man has so favorable an opportunity to review progress in the business and, by the same token, there is no other time at which those who sell to the gas man have so favorable a time to attract attention and to explain the merits of their product or service. Those who go to Atlantic City should do so with the full expectation of securing quite as much from the exhibit as from the meetings where formal papers are presented. The fine spirit of cooperation between sellers and buyers which is growing up under the A. G. A. auspices is contributing splendidly to this result.

Versatility
In Home Service

HOW FAR DOES GAS extend in influencing the living conditions of the vast populace which it serves? Further, to what extent can we go in volunteering ideas and information to the housewife without seeming presumptious?

The first question is certainly a poser, to say the least, but we do not have to stretch the bounds of veracity in saying that the use of gas has had a far-reaching and beneficial effect in helping to shape our mode of living.

As to the second, we can be assured that we can go as far as we like, so long as we intelligently handle the process and please our customers. We can prescribe just so long as we continue to administer a tonic that the customer unadvisedly admits is helping him.

Specifically, if we can sell Mrs. John Doe a fireplace heater and advise with her as to just what type will fit in with the decorative scheme of her living room, we are prescribing a tonic that is the very antithesis of the corner snake oil concoction. If, when we sell her a gas range, we can offer a suggestion as to the placing of the kitchen equipment in general as well as the efficient routing of the work, we are well on the road to further gaining her confidence.

Clearly the Home Service Department of a gas company is the clearing house for such information and suggestions. It is likely that no Home Service Department employee will be particularly censured if she is unable to tell the customer what to do with the cellar in the event that the customer installs gas house heating; more, her job will still be safe if she cannot route the household work done in the kitchen. But such an employee will command more respect from the company's customers as well as a growing pay check if she can tactfully and intelligently set the customer straight in these and other similar regards.

We believe it is sound advice to suggest that all of those actively identified with Home Service work should keep reasonably posted on all of such matters that hinge on the use of gas in the home. And, incidentally, those who have such data at their command can use it as far as they like, so long as the customer retains the idea that she is getting superior service.

Room for
Improvement

DURING A RECENT VISIT to several of the large cities on the Atlantic seaboard we had occasion to inspect a number of the higher class of homes and real estate developments. We were particularly interested in the provisions for supplying the future tenants of these homes with hot water. The conditions disclosed in this regard were somewhat surprising. Incidentally, it must be borne in mind that the class of houses under consideration ran in price from about sixteen thousand to twenty-five thousand dollars.

In a great many cases a furnace water heater was provided for supplying hot water in the winter. (A fruitful field for some missionary work here.) However, the surprising feature was that the ordinary, so-called "side arm," gas water heater constituted the equipment for furnishing hot water in the off-furnace season. Still more surprising was the existence of the thought in the builder's mind that this was one hundred percent correct equipment for the type of house.

If such equipment is correct then it is high time for manufacturers and sellers of the old-time jangling front door bells to get actively back into business again.

But this equipment is not proper for such class of houses; automatic gas fired water heaters of some sort are the devices that fit in with this type of property.

We are but at the threshold of the possible water heating business and this thought is one that can stand continued and energetic furthering from every angle. Indeed, it is an obligation on the part of all concerned to drive home the idea to the public, the builder and the real estate man.

Guard Food As You Guard Life

The most substantial part of the daily menu is usually the meat dish—and meat is an important food, rich in strength-giving nutriment. No food, however, requires more scrupulous care. From the moment it arrives in the kitchen, its wholesomeness is challenged. *Dry Cold* is the safest, most appetizing preservative, both before and after the meat is cooked.

The Gas Refrigerator

provides constant dry cold for preserving all food safely. And yet it is the simplest form of mechanical refrigeration for it has no moving parts, nothing to get out of order. Now offered for, only

$00 *down*

the balance monthly with your gas bills.

(Your Name and Address)

A.G.A.-940

MOTHER!

Protect them from the Fly Menace

Flies are not only a nuisance and a torment, they are an actual constant danger. The only way to be sure of ridding your home of this menace is to remove the source of their food supply.

Gas Incineration

burns all refuse from the table to a fine white ash, destroys garbage beyond its power to attract and feed flies. You can purchase your gas incinerator for only

$00 *down*

the balance payable monthly.

(Your Name and Address)

A.G.A.-939

Is the Shadow of a Shovel Coming Nearer?

The summer months are slipping away and before you know it, winter—the furnace tending season—will be with you again. Will you pick up the old shovel and start in where you left off last spring? Or will you let

GAS
for househeating

relieve you of the job forever. A gas furnace operates from a thermostat on the wall—you turn it on in the fall and off in the spring. An even steady heat, according to weather needs, is maintained at all times. May we send a househeating expert to talk over your needs, tell you how much it is costing other men to "do it better with gas"? Phone today No obligation to you.

(Your Name and Address)

A.G.A.-938

How Else Can You Be So Sure?

Home washed linens give you that final certainty of safety and cleanliness that no public laundering can completely equal.

Washed alone with only your own things, washed in your own home where you KNOW the sanitary conditions, washed under your own supervision—how else can you be so sure?

And not only do you have that added confidence in their cleanliness, but you can also have equal pride in the fragrant "sweetness" of home washed clothes and the better ironing.

GAS Laundry Equipment guarantees these things to you, and much more. With up-to-date gas appliances home washing can be done with a most surprising saving of work and time and cost. All gas laundry equipment can of course be purchased on monthly payments added to your gas bills.

[Your Name and Address Here]

A.G.A.-942

And It Was So Easy!

NO weary fagged spirits, no hours of standing and watching have paid for these laden pantry shelves. Her winter's fruit was canned on a modern gas range—in the oven—where she didn't even have to watch it.

Oven canning, home economics experts tell us, is the most efficient and economical method, and the modern gas range with oven heat control regulates the cooking time and degree, saves hours of work and bother.

MODERN GAS RANGES

completely equipped with oven heat control now offered for as low as

$00 *down*

GET YOURS NOW!

(Your Name and Address Here)

A.G.A.-941

American Gas Association advertising suggestions for the month of August.

Planning the Advertising Budget

By Henry Obermeyer

Assistant to the Vice-President, Consolidated Gas Company of New York

FIRST of all, let us define what we mean by budgeting, at least to the extent of pointing out a fundamental difference between the budget which your wife and mine manage to keep, more or less conscientiously, in running the household—and the advertising budget, if any.

The difference is simply this: The household budget is used to regulate expenditures for consumable goods, such as rent, clothing, food, entertainment, education and general upkeep. The flow of money is all in one direction, for, while income naturally affects the standard of living, there is no revenue from the grocery or tailor bill, except in fictional exceptions of the "Skinner's Dress Suit" variety.

The advertising budget, on the other hand, is a revenue producer. If it cannot stand as such on its own feet, then it is either

1. Too large
2. Too small
3. Bunk

There is nothing sacred about advertising or the advertising appropriation. Advertising is a business man's tool—a modern method of doing business, sometimes wasteful, sometimes ineffective, just as any other method would be if applied without common sense. Some day, in an age of ultimate consolidation, we may be able to do without it, as cigar stores in some localities are doing without cigar clerks. Just at present, however, intelligent advertising is a requisite to business success wherever competitive interests are involved.

Extravagance Not Necessary

Because we must advertise is no reason why we should advertise either extravagantly or inefficiently. We want to advertise well enough and extensively enough to do the job. We also want to advertise without excessive waste.

To determine the exact point at which to stop constitutes the crossroads of the entire subject of budgeting advertising, and is the place where many advertising men take the wrong turning. Why is this? Simply because we have for so long written and talked in terms of percentages. "What percentage of gross revenue should we spend for advertising? One—two—four per cent?"

Take your choice. It doesn't matter, when you play the game in this fashion with a blindfold.

Advertising, properly conducted, is a revenue producer. Its results are reflected in next year's sales—not those of last. Last year's profits determine to some degree how much advertising you can afford, but bear no relation whatever to what should be spent. A certain amount is needed before any perceptible results can be secured at all. A business that cannot afford even the minimum required will be better off to apply its advertising "appropriation" to the hiring of another salesman or some other modest enterprise.

A more accurate criterion to gauge the size of the advertising program is—how much more business can we handle, and of what character? Or even—what branch of our business shows a tendency to fall off, and seems, therefore, most in need of such help as advertising can render?

A Typical Solution of the Problem

Let us take a hypothetical, though concrete example. Here is a list of major gas appliances:

Ranges
Refrigerators
Circulating Water Heaters
Automatic Storage Water Heaters
Domestic Furnaces and Boilers
Laundry Dryers
Incinerators
Space Heaters
Industrial Equipment

Let us divide this into three parts, consisting respectively of:

1. *Appliances showing satisfactory sales*:
   Refrigerators
   Storage Water Heaters
   Domestic Furnaces and Boilers
   Industrial Equipment
2. *Appliances showing falling sales*:
   Ranges
   Circulating Water Heaters
   Space Heaters
3. *Appliances showing slight salability*:
   Laundry Dryers
   Incinerators

Obviously, the first classification requires only normal sales activity. The last depends on the character of the market, which may or may not account for the condition indicated. The second classification, all other things being equal, desper-

ately needs all the extra advertising assistance we can give it.

Not only is this a guide to future appropriations; it also illustrates the fallacy of the "percentage method" of basing the budget on a proportion of last year's sales. What is valid for each branch of our business should be equally valid for the whole.

In the 1928 Annual Reference Number of "Sales Management," the Dartnell experts indicate the present trend in budgeting advertising. They say:

"In the last year there has been a noticeable trend away from the fixed appropriation for advertising. There is arising within the ranks of advertising men a group of thinkers who believe that there is and should be a direct relationship between sales aims and advertising expenditures. This opinion is in contrast to those who hold to the older, and more orthodox theory that the amount to be spent for this year's advertising should be based entirely on last year's sales.

"This older practice had its place in the advertising scheme of things in the early days of advertising, when the results from advertising were very indirect. The practice still has merit for those who look upon advertising entirely as goodwill insurance. But the present conception of advertising is that it is a form of selling, and should be used as any other direct sales force according to your need for it. . . . Judging from reports of more than 200 sales and advertising executives and from opinions expressed on the subject by authorities who have written exhaustively on this subject, a sales and advertising quota based on a certain percentage of the previous year's sales, however easy to handle mathematically, does not furnish a true basis for operation."

Having disposed of the theory, the rest is a matter of detail. Not, be it understood, a matter of mere detail, for the detail is, perhaps, the major portion of the job.

Although it is convincing enough that the advertising appropriation should be based on aims rather than on results, it seems to me that we cannot very well draw up an intelligent budget without an intimate experience with last year's expenditures.

Some organizations have been known to make changes in the personnel of their advertising departments without taking this important factor into consideration. The result has been a loss of both money and progress.

I should say that even an advertising manager experienced in making up such budgets would have to spend at least a year or two with an organization studying its needs and established outlets before even attempting to scale his appropriation for future activities. And he would certainly have to spend a year watching his money in action and drawing conclusions as to what it could do for him and his organization.

Unless, then, he has been working up to that point for such a period, he will be well advised to start his budget plan exactly as though he had just come fresh upon the scene. The first year he will attempt nothing in the way of allocations, ratios, etc. His entire appropriation will be suspended in an emergency classification. His records will then tell the story in such a way that, at the end of the year, he will know exactly what he has been able to accomplish through each medium with a given sum of money.

This is budgeting reduced to its simplest, and possibly crudest form. Thus far, it bears no relation to sales, past or present. Actually, however, it is the first step toward a sensible budget, and should be mandatory in any organization that professes to merchandise in a scientific fashion.

At this point, the advertising manager will find it desirable to contact as intimately as possible with other commercial departments. (Some advertising men

ONE OF A SERIES OF ANNOUNCEMENTS SHOWING WHY
New York's Progressive Builders Prefer Gas Refrigeration
The Lombardy
HERE, in the heart of things social, and yet within easy access to the business centers of the city, fashionable New York comes to live and entertain.
To have an apartment at the Lombardy is a luxury, but not an extravagance. It was built for those who demand the best in life, and who succeed in escaping the petty annoyances of daily living, which many of us still take for granted.
This is why the builders of the Lombardy selected Gas Refrigeration, as the only method which promised an assurance of silent, trouble-free service under all conditions.
USE THIS COUPON
Consolidated Gas Company
GEO. B. CORTELYOU, President

How the Consolidated Gas Company of New York uses the printed word in extolling the merits of the gas refrigerator and creates a desire in the mind of the prospective buyer.

Note the attribute of refinement which is cleverly worked in with the message.

Intelligent window trimming forms a necessary cog in the advertising wheel. Give your "silent salesman" some earnest thought.

may not like that "other.") His records and experience have demonstrated that it costs a certain sum to do a definite job. Are these also the mediums which the company's problems seem to call for in making plans for the year to come? If so, is it desirable to curtail some—expand others? Knowing the problems at hand, what recommendations for additional activities should be submitted by the advertising department?

The answers to these questions will furnish a sound basis for the budget.

Ball-and-Chained

Before I go any further, this is not a suggestion for control of the advertising appropriation by anyone except that individual who is responsible for its efficient and effective expenditure. Supervision is an entirely different matter, and is perfectly proper and necessary. No portion of these observations applies to conditions in that type of organization which employs a technician in advertising to keep abreast of the opportunities and best practices in his field, only to keep him ball-and-chained by a committee of i-dotters, who think "Use More Gas" a pretty snappy slogan.

At present I am visualizing a gas company where advertising is properly regarded as the function of the advertising man. He is, or should be, the expert on what advertising through its various mediums can accomplish in bringing sales, good will or some other object to the firm. If the commercial, financial, accounting, or even technical departments can avail themselves of his services and facilities, then so much the better for efficient management. When you sit down to figure it out, it is surprising how much an alert advertising department can find to do outside of what are generally regarded as its normal limitations.

When These Disturbers Cry-
"Sleep No More, My Lady!"
Remember-
Only Gas is Stone Silent
(IF WE MAY COIN A PHRASE)
ALL is complete restfulness and quiet in the all-gas household. In the basement the kitten sleeps by the gas furnace and water heater, with not a whisper to disturb his dreams.
In the early morning there is no rattle of coals and dampers . . . no banging of ash cans . . . no rumble of trucks.
Summer Facts about House Heating Water Heating and Industrial Heating
Gas Service is completely noiseless and trouble-free.
YOU OWE IT TO YOUR NERVES
Its silence means not only restfulness for you and yours, but is the immediate result of using a fuel that can be translated directly into heat without the aid of mechanical or human accessories . . . which may fail or get out of order at any time.
This is what you have always wanted in the way of perfect comfort. The more you know about it, the better you will be pleased. Start today by using the coupon, which is attached below for your convenience.
CONSOLIDATED GAS COMPANY
GEO. B. CORTELYOU, President
"To Serve New York"
130 East 15th Street, Room 1238
Gentlemen:
Please send your representative to give me further information respecting the use of Gas for ☐ House Heating ☐ Water Heating ☐ Industrial Purposes
—or—
Do not send representative, but mail to me instead, without obligation, your booklet ☐ "Heating Your Home For Comfort" ☐ "Service Behind the Faucet."
(For prompt attention, check in space desired)
Name
Address

The illustration in your newspaper ad. should not strive after excessive detail and should get across its idea with despatch. The return coupon is always in good order.

It can assist the manufacturing departments by lending its weight to the sale of coke and other by-products; by aiding in various ways to attract the most desirable type of young engineering talent to the company; and by stimulating the interest of the public in the technical development of the industry.

It can assist the bookkeeping and related departments by forestalling certain types of complaints through the spread of needed information; by speeding up the payment of delinquent bills by warning the ignorant and malicious of the consequences of tampering with meters, mains and service pipes.

It can assist the utilization and shop departments by issuing safety advice and by giving publicity to inspection services and matters of policy affecting the installation and upkeep of appliances in use.

Legitimate Tasks

One could go much further without impinging upon the borders of fancy, but the above is sufficient to indicate the scope and usefulness of a well-stocked advertising organization. Activities such as these are all legitimate tasks for the advertising department, and they bear a direct relation to the matter of budgeting.

I have frequently heard advertising men lament that the advertising account, so-called, was utilized by officials and other department heads of the company as a handy convenience to which to charge items of a doubtful or extra-curricular nature merely to avoid setting up a "miscellaneous" column; and that, therefore, what was needed was a strict definition of what constituted "advertising" from the accounting standpoint.

I agree that the practice, where it exists, of saddling on the advertising budget all items for which proper

pigeon holes have not previously been constructed is a bad one and should be firmly and continuously opposed by the advertising department. Nevertheless, such opposition should not be unduly extended merely for the sake of making the appropriation seem smaller than it actually is.

There is nothing inherently alarming nor extravagant about a large advertising appropriation, provided it bears a proper relation to reasonable expectations as a producer of sales, or whatever other object it may be designed for.

It seems to me, therefore, that an intelligent budget for advertising cannot be devised until the sales and its related departments have set their marks to aim at, and, at least to some degree, outlined their activities, supplemented by approved recommendations and proposals of the advertising manager. The latter will advise out of his experience and judgment approximately how much it will cost to accomplish these aims through advertising. If the cost seems excessive, then that is an indication either that the project should be abandoned or, if possible, pursued in more modest fashion through some other channel.

Under these circumstances, the advertising manager should welcome, rather than exclude, charges on his department, for, in the final analysis, the budget constitutes not only his own record and guide (it should never be his alibi), but likewise a convenient method for the company organization to measure its own strength in the scale of business competition.

Budgeting is a necessary, but not inevitably arduous, function of the advertising department. Once established as a practice, it should tend to lighten the burden of the advertising man and those about him, and is worth undertaking if for no other reason than the coordination which it achieves among those divisions which can use the advertising medium to advantage.

An Analysis and Classification of Wage Systems

By J. J. Berliner, B. C. S.

Senior Member of The National Accounting Systems

THE problem of wage payment occupies a position of central interest in the industrial world. "How much do you pay?" "What is a fair day's wage?" These two questions are immediately put by workers on the one side and employers on the other. The question of wages presents one of the most difficult problems to be solved by industry today.

The methods which have been devised for remunerating labor may be classified into three groups as follows:

1. Time work, in which the employee is paid by the hour, the week, the month, or the year.
2. Contract work, which includes different payment plans such as (a) the ordinary piece-rate method, (b) the differential piece-rate method, (c) the collective contract, whereby a contractor agrees to furnish the labor for a certain quantity of product at a certain price, the contractor selecting his own method of paying those who work for him.
3. Bonus, efficiency, or premium systems, including (a) promotion systems under day rate as a reward for increased efficiency, (b) the Halsey premium system, (c) the Rowan premium system, (d) the bonus system, (e) the efficiency system, (f) combinations of the above.

Time Work

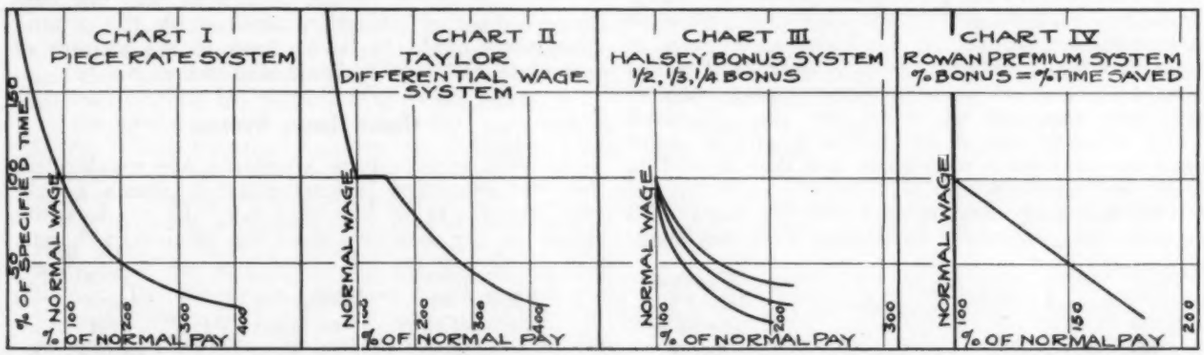
With time work in its usual form, there is no record of the individual's performance. There is no incentive for effort except of such a sort as will result in the employee's recognition as a good worker by his superior and as such increase his chances for promotion. On the other hand, there is really no penalty for ordinary inefficiency or time-killing, for as soon as a reward is introduced for individual efficiency a departure is made from the traditional time work or day rate, even though the reward may be of a sort which is not recognized among the so-called bonus or premium systems of pay.

Value of Time and Motion Studies

As regards time work, one of the surest ways of cutting down on the waste of materials and labor is by the introduction of time and motion studies. By time and motion studies, plus standardized routing, scheduling, moving of materials, and functional foremanship, many economies will ensue. But it must be noted that unless the proper inducements are offered to employees for the extra effort necessary to follow the various instructions, together with penalties attached for failure to put forth such efforts, only a fractional part of the advantages of standardization and planning will be realized. Proper supervision as well as standardization and planning, and good working conditions, such as are developed by proper welfare activities, will go a great way toward remedying time losses under a day-rate system. In fact, these conditions are necessary in the introduction of any kind of wage system.

Piece rate system is the plan of paying for measurable results rather than for time service. At first thought, ordinary piece rate would seem mathematically fair. The system, however, has been so badly abused that there exists at present a tremendous prejudice against it.

Piece rate has been used as a bait to speed up employees to a certain pace and then, when the pace was reached at which certain workers would earn more than the management considered they were worth, the rate was cut. After several of such cuts the system produced nothing but fear and hostility together with intentional loafing on all new work, so as to get the piece rate set as high as possible, since it was bound to be cut. If piece rate is to be used at all, it must be accompanied by a guarantee that there will be no change in rate so long as methods, tools, and machines are not changed.



However, where time reduction results through improved machinery and is in no way the result of effort on the part of the employee, a change in rate does not constitute a cut. Chart 1 shows how normal pay increases and decreases under ordinary piece rate.

Differential Piece Rate

The differential piece rate consists of two rates: (1), the ordinary piece rate, which is paid a man for a normal or ordinary output, and (2), a higher rate, which is paid per piece, if a man turns out more than an ordinary output. Under the differential piece rate system the workman not only has nothing to fear of the rate being cut, but he has a tremendous incentive to earn high pay, in view of the fact that he receives an exceptionally high reward for accomplishing good results.

For example, assume that, as the result of time study, it is shown that a piece of work can be done in 15 minutes. In order to allow for necessary rest periods and avoid lost time, 60 per cent is added to the possible time, an increase of 9 minutes as an incentive, making 24 minutes the normal or average man's time. In an eight-hour day we should have 480 minutes; hence, the normal average output of an ordinary man would be 20 such pieces. Under the differential piece rate system there would now be two rates offered, say, for example, 30 cents per piece for an output of 20 or less, and 32 cents per piece for an output of more than twenty. Thus if the man produces 20 pieces, his earnings for the day would be $6, whereas, if he turns out 22 pieces, his earnings rise to $7.04. The company can afford to offer the increased piece price, because the cost of operating a machine tool, including power, light, heat, rental, repairs, etc., is likely to be as great as the rate of the man who is operating the machine, and the day rate of the machine remains very nearly stationary while the output increases. Chart 2 shows how under the differential piece rate the pay per piece increases at a more rapid rate as time is reduced than under ordinary piece rate.

This last point may be illustrated mathematically. Let us assume in the above case that the cost of operating the machine is 40 cents an hour. The formula for determining the direct labor and machine cost per piece will be as follows:

$$\frac{\text{Machine rate x hours x piece rate x number of pieces}}{\text{Number of pieces}} = \text{cost per piece}$$

Thus if a workman turns out only 16 pieces during an eight-hour day, the cost per piece then will be:

$$\frac{35 \times 8 \times 30 \times 16}{16} = \frac{760}{16} = 47.5\text{c.}$$

If, on the other hand, a good workman turns out 22 pieces, the cost per piece will be as follows:

$$\frac{35 \times 8 \times 32 \times 22}{22} = \frac{984}{22} = 44.3\text{c.}$$

From the above illustrations, it is seen that the workman who produces only 16 pieces earns $6 per day and the cost to the employer is 47.5c. per piece. On the other hand, the workman who produces 22 pieces earns $7.04 per day, while the cost to the employer is only 44.3c. This illustrates the fact that under a properly adjusted wage system of the differential piece system both employer and employee may profit.

Contract Work

Where work is repeated over and over again in considerable volume the practice exists of making a contract with competent workmen whereby they are to furnish a certain number of pieces at a specified price. Under this arrangement the contractor employs his own men, while the company furnishes the material, buildings, equipment, tools, etc. Perhaps the most satisfactory reason for the employment of contract work seems to be that organized labor will submit to a brisk pace when imposed upon its members by a contractor who is himself a member of the organization.

In the premium system devised by Mr. F. A. Halsey, the workman receives his hourly rate, and in addition to this receives extra pay every time he does the work in less time than the standard time.

The time standard originally used by Mr. Halsey was the average of the records of previous performance. At the present time, however, the time standard is usually taken from 40 to 60 per cent higher than the time in which a skilled workman can do the work under correct conditions, such time standards having been established by a scientific motion and time study made during demonstrations by a skilled mechanic. The method of figuring wages under the Halsey premium plan is expressed in the following equation: (See also Chart III.)

Wages equals the time x the hourly rate x the time saved x a fraction of the hourly rate.

The usual fraction of the hourly rate is 50 per cent, and prior to the general acceptance and introduction of accurate motion and time study made on demonstration by skilled workmen as a basis of time standards, various systems were used which sought to establish a diminishing premium scale as the time was reduced below the time standard. These systems sought to provide a sort of insurance for employers who made mistakes in setting their time standards too high.

The following table shows some of the results actually obtained under the Halsey Premium Plan:

Time Allowed	Time Taken	Wages on job at 30c. per hour
10 hours	10 hours	$3.00
"	9 "	2.70
"	8 "	2.40
"	7 "	2.10
"	6 "	1.80
"	5 "	1.50

The premium rate has the advantage that it does not set up fear as an incentive. Absolute guarantee should be made of the principles of time standards under the premium rate system, so long as methods, tools, and machines are not changed.

Rowan Premium System

This is a modification of Halsey's premium system devised by Mr. James Rowan. Time limits are established as under the Halsey system. The amount to be added, in case the time limit is reduced, is figured as follows: The premium equals the money value of the time actually taken to do the job multiplied by the time saved and divided by the time limit. For example, if the time limit is 10 hours for a piece of work on which is employed a man receiving 30 cents an hour, and he does the work in 8 hours, then his pay will be 8 times 30, or $2.40 for his regular time; the premium to be added will be $\frac{2 \times \$2.40}{10}$ or 48 cents.

Time Allowed	Time Taken	Wages on job at 30c. per hour
10 hours	10 hours	$3.00
"	9 "	2.70
"	8 "	2.40
"	7 "	2.10
"	6 "	1.80
"	5 "	1.50

Further results of the application of the Rowan Premium System are shown in the table at the bottom of this page (see also Chart IV):

Under this system, no matter how far the time is reduced, the premium will never be quite as great as the regular pay at a given time, so that the workman can never double his wages. Some of the objections raised against this system are that it requires a higher grade of clerical help to figure out the premiums than is needed with the Halsey system, also, that figuring the premium is too complicated an affair for the workman, and that he will therefore become dissatisfied. Where the clerical labor and workmen are both of a high order of intelligence, these last objections will not hold good. Another objection made is on the ground that there ought to be no limit to the amount of premium or bonus which a man can earn.

Gantt Bonus System

In this system time standards are established, but the employee is guaranteed a certain hourly rate regardless of his efficiency. If he does the work in the standard time he receives a bonus,

Premium 1/3 of the value of the time saved	Workman's earnings per hour	Total labor cost of job
.0	.30	$3.00
.10	.311	2.80
.20	.325	2.60
.30	.343	2.40
.40	.366	2.20
.50	.40	2.00

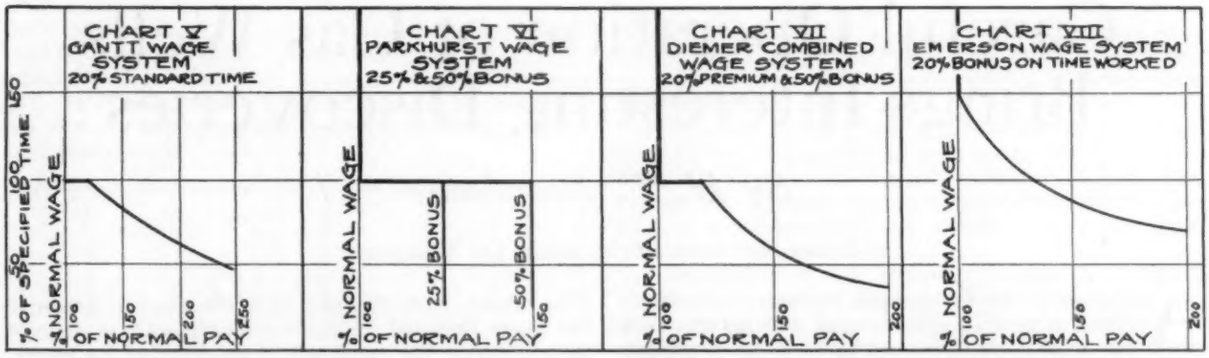
usually from 20 per cent to 50 per cent, depending on the nature of the work. (See Chart V.)

If he does the work in less than the standard time he receives the time rate for the standard time plus the same bonus. In other words, the system is virtually a time rate for the man who does the work in more than standard time, and it is a piece rate for those who reach or better the standard.

Suppose, for example, that the standard time for a given job of work is eight hours, the rate of pay is 40 cents per hour, and the bonus is 30 per cent. If the man takes ten hours to do the work he gets 10 times 40 cents, or $4 for the job.

If he does the job in eight hours, he gets eight times 40 cents, or $3.20 plus 30 per cent on 8 hours —which is 96 cents. Thus makes his earnings $4.16 for eight hours, and his hourly rate is 52 cents. If it takes him six hours to do the work, he receives $2.40 for the time at work, plus 96 cents as a bonus, making his total wage $3.36 and his hourly wage 56 cents as contrasted to 40 cents in the first instance and 52 cents in the second.

Premium Money value x per cent of time saved	Workman's earnings per hour	Total labor cost of job
.0	.30	$3.00
.27	.33	2.97
.48	.36	2.88
.63	.39	2.73
.72	.42	2.52
.75	.45	2.25



The purpose of this system is to secure to the workman his earnings while he is learning the job, and then pay him a sufficiently large bonus to keep him working at his highest rate of efficiency.

In addition to the bonus paid the workmen, a bonus is also frequently paid to the foremen. The foreman's bonus varies with the number of workmen in his gang who earn their bonus.

For instance, assuming that the foreman had 10 men under him, he would get 10 cents per bonusman, or $1 per day, if nine of his men made their bonus. If, however, all his men made their bonus, he would receive 15 cents per man, or $1.50. This system applies the differential piece rate for rewarding the foreman.

It will be noted that the individual job bonus system recognizes 100 per cent efficiency on the individual job, but does not reward a man for his effort, in case he does not attain 100 per cent efficiency. The payment of bonus on individual jobs demands a high grade of accuracy and integrity on the part of the person keeping the time record, so as to prevent the robbing of time from one job and putting it on another in order to favor the working men. Moreover, the most desirable employee is not the one who makes gains by occasional spurts, but one who averages high in efficiency. Under the individual-job bonus system there is no incentive to maintaining a uniformly high efficiency on all jobs. Chart VI shows how pay on individual-job bonus system increases as time is reduced. (Parkhurst Wage System.)

Diener Bonus and Premium System

Under this system workmen are paid a percentage increase of their wages, such as 10 per cent, etc., if they reduce below past average the time in which the work is done. They are paid 20 per cent of hourly wage increase if the work is done in a specified standard time, such standard time being based on motion and time study, or demonstration by skilled workmen, and about 30 per cent being added to this time. A further socalled "gain-sharing bonus" on the Halsey premium plan was allowed if they did the work in less than the specified standard time. In addition to the bonus wages paid, a record was kept of every man's percentage of success during each pay period, and each man's percentage of success was made the basis of promotion in his hourly rate. (See Chart VII.)

Efficiency System

Under this system a standard time is established for each job. During each pay period a record is made of the number of hours a man worked on the jobs on which time standards were established. Then the total hours in which he did these standard time jobs is divided into the total sum of the time standards.

Mr. H. Emerson devised a sliding scale for determining the bonus to be paid under the efficiency system. This scale is as follows:

Per Cent Efficiency	Bonus as Fraction of Wages
66	.0001
68	.0004
70	.0020
72	.0055
74	.0101
76	.0161
78	.0239
80	.0330
82	.0435
84	.0555
86	.0693
88	.0840
90	.1000

Above 90 per cent efficiency add the percentage above 90 to 10 per cent and the sum is the fraction of the wages to be paid as bonus. Chart VIII shows how with guaranteed day rate the Emerson system rewards for increased efficiency.

Selecting a Wage System

In conclusion, it must be noted that the type of wage system to be introduced will depend not only on the extent of standardization, but also on whether the workmen are of a high or low grade of intelligence, and whether or not they are under the domination of strict union regulations in regard to wages. In general, we may state the field of the various systems as follows:

Where standardization has not been developed very far, time work with efficiency records is appropriate.

Where standardization is under way, but has not been very well developed, the premium system is applicable.

Where standardization is fully developed, the bonus system on individual jobs, the combined bonus and premium system, or the efficiency system can be used.

Careful Operation of Gas Wells Brings Interesting Discoveries

By H. F. Beardmore

Indian Territory Illuminating Oil Company

ALL operators in the gas industry are interested in new equipment that will do the work better and cheaper, and in new developments on their gas acreage. This part of the work gets a large share of attention. The idea of careful operation of gas wells on a scientific basis and of producing the wells in a manner to recover the most gas seems to have been slighted.

A large group of gas wells in Osage County, Oklahoma, receive the attention of special engineers who daily watch the operations, and prescribe for the repair and proper care of wells. A study of the well records, when combined with a knowledge of geology, gives the interpretation of the sub-surface condition. A study of the gauging of the wells gives information for determining the proper production method and the probable future for the well. Continual study gives the information that leads to prompt repairs and the opportunity to combat serious troubles as soon as their symptoms have been discovered.

Significance of Pressure Change

The wells are produced through orifice discs, and the gas flow is critical through the orifice in most cases. With this situation, any change of the working pressure of the well is a direct reflection of a change that is occurring within the well itself. All wells are therefore equipped with recording gauges and the pressure, which is continually shown on the charts, is the chief index for judging the action of the well.

The wells are gauged in accordance with the rules of the Osage Indian Agency which supervises development of Osage oil and gas properties; a 15-minute build-up pressure is taken every month, and an open flow is made every three months. In several special cases a method of pressure gauging has been substituted for the quarterly open flow. The continuous record from the wells as shown on the charts has led to the discovery of several interesting occurrences that greatly affect the recovery of gas from certain wells.

An example of edge water encroachment that has been carefully watched has given some definite information for procedure when such conditions exist. A gas well, producing from the Wilcox Sand, is almost on the top of a sharp dome in which the position of the edge water is definitely shown by offsetting wells. This well was the only producer in the area, and all nearby wells found a hole full of water in the same sand. The water rose to a level in the offset wells so that the hydrostatic head was equal to the gas pressure in the producing well. This, along with the fact that the shut-in pressure has never declined on the producing well, is definite evidence that the structure is surrounded by water, and that there is a true "water drive."

Action of Edge Water

After a few years of production, the well reached the stage where the edge water was very near the hole. Whenever the well was blown, water would appear in large quantities and continue to flow as long as the pressure was released from the sand. After such an occurrence, the well could be shut in several days and become perfectly dry. If produced with a high working pressure, it would remain dry without any water entering the well. However, as soon as the pressure was relieved again, the water would rapidly appear.

The analytical consideration of the case is shown in Figure No. 1. The sand is pictured as a uniform body, the edge water at a gravitational equality, and the well slightly off the crest of the structure. When the well is considered as open, without pressure on the sand, there is a gradual increase in the pressure of gas in the sand at radial distances from the well, and a point is finally reached where rock pressure exisits. These pressures should be the same at equal distances from the well, and are so represented by aa and bb.

Referring to the figure, the pressure of the gas at the water's edge is "a" on one side and "b" on the other side. In the water, when there is no movement, the hydrostatic pressure will exist throughout and this will be the same as the shut in pressure of the gas well. It is evident that the nearest point of gas and water contact is subject to the least resisting pressure in the gas body when the well is open, so, under the influence of a pressure differential, the nearest region of edge water "a" is the one that moves first and moves the most rapidly toward the well. The edge water on the side farthest from the well is opposed by a pressure of the gas that closely approximates the maximum pressure, so there is only a slight differential and consequently a slight movement at this point.

Abandonment of Well

During the periods of excessive production or at times of open flow, movement of the water is rapid. The capillarity of the water and its adhesion to the sand is sufficient for it to hold a part of every gain, and the time is finally reached when the water affects the well. It is not long after this until the well is necessarily abandoned because of inability to handle the fluid produced.

It is undoubtedly true that the well described has been prematurely ruined by the advance of edge water. Every period of excessive production or open flow has caused an advance of the water from one side only, and its entrance to the well has trapped out a large quantity of gas that should have been recovered.

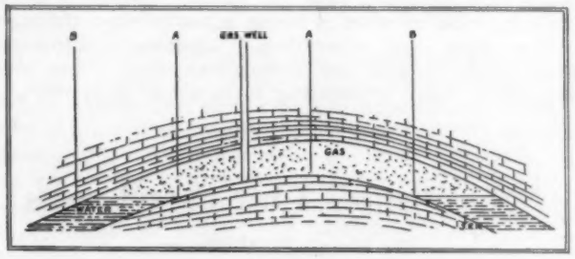


Figure 1

A slow production of gas, with high working pressures and no open flows, permits gas removal with only a slight drop in the gas pressure in the sand, this drop occurring in an area close to the well. The gas pressure at the gas-water edge is never greatly reduced, and there is a uniformity of movement on all sides. The movement from all sides was evidenced in the well described by the fact that there was a tendency for the water to recede from the well when there was no production for some time, and it shows that a water advance is most natural with a gravitational level of the water edge. Even after the type well was classed as "too wet to produce," some gas was removed from it without water, by holding a pressure almost equal to rock pressure, and by shutting the well in at the first sign of water.

High Working Pressure Essential

From the standpoint of conservation, profitable operation and proper protection against offset wells, a production with a high working pressure is essential in cases of edge water. Unless this plan is followed there will be areas of gas surrounded by water which cannot be reached except with a new well, and this expense could not usually be justified. Without care, the original well will not have a maximum ultimate recovery, and the profits will be smaller. Also, offset wells must be considered. If one well is pulled heavily in an effort to get the largest recovery, it is very likely that the results will be the reverse of what is expected. The well with an excessive delivery will be the first troubled by water unless, of course, it is the high well on the structure or there is no edge water, and in the end the well that is carefully operated will get the largest recovery.

A very peculiar occurrence of subsurface waste of gas has been recorded in a well drilled into the Mississippi Lime formation in Osage County, Oklahoma. The facts were discovered by the careful operation methods in use, and the results could be interpreted only because of the amount of systematic information that had already been obtained on the well.

The well was drilled on the highest part of a general structure that extends slightly over half a mile in each direction. The original rock pressure was 550 pounds, which was exactly the same as all other original pressures of the wells drilled into the same lime production in the area.

The initial volume was 7,194,000 cubic feet open flow. The six-inch casing was set in the top of the lime, and the formation was penetrated 51 feet. The casing was mudded on the outside from top to bottom as is the practice, and it was found to be tight when the gas was shut in.

When the well was completed a test for volume produced at various back pressures was made and the test plotted for record. The production was regulated to maintain a pressure of 495 pounds on the well, and the daily delivery to the line was 1,650,000 cubic feet at this pressure. The well operated smoothly on this basis for three months and produced 135,000,000 cubic feet of gas without lowering the rock pressure.

What Field Report Indicated

At the end of about three months a report came in from the field and showed that the working pressure had fallen to 400 pounds, from 495 pounds the day before. A visit to the well was immediately made by the operating engineer and it was found that the chart showed the drop had occurred at the time the quarterly open flow test was made. The man making the test was then interviewed, and the action of the well during the gauge was discussed.

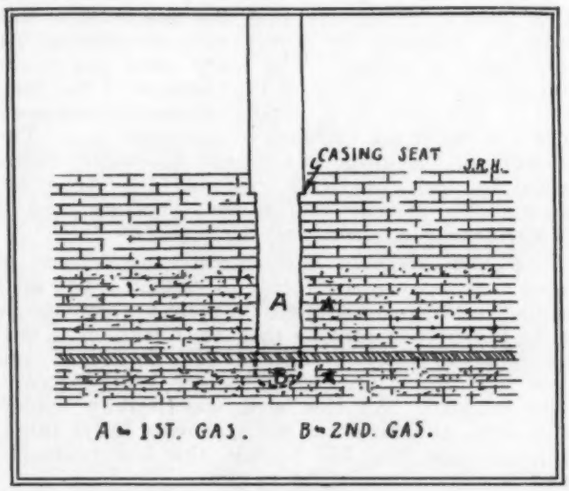


Figure 2

The first significant feature determined was that when the well was first opened it blew out a sufficient amount of shale to make about two feet in a six-inch hole, and that less than a gallon of water appeared after the three months of steady production. Besides this, the gauge sheet showed that the open flow volume of the well had increased from the original volume of 7,194,000 cubic feet to 9,300,000 cubic feet. The most peculiar feature of all was that the shut-in pressure of the well was no longer 550 pounds but in the short space of fifteen minutes, during the open flow, something had happened to change the shut-in pressure to 440 pounds,

a drop of 110 pounds. A thorough pressure test was made the next day and sufficient information was then available for an interpretation of the incident.

The sketch in Figure No. 2 is used to show the subsurface condition that the analysis disclosed. It was evident from the increase in the volume of the well that the well had drilled itself into a second gas sand, and from the shale that was blown out of the well, the only reasonable supposition is that the second gas was separated from the first by a shale break that was located in the lime just at the point where drilling had been suspended. The 2,206,000 cubic feet increase in volume is then attributed to the second gas below the break.

The condition of the completed well, with a string of pipe set in the top of the sand and thoroughly mudded outside, has eliminated any consideration of the changes that might have occurred above the sand. There was no mud produced with the gas and the fact that there had been no movement of the mud level outside the six-inch, and no waste of gas there, makes this conclusive.

Presence of Additional Gas Sand

It is now evident that an additional gas sand is present; that there is no escape of gas through the pipe, and yet the shut-in pressure of the well has declined 110 pounds. From the original test on the well, the top sand "a" would produce 2,877,000 cubic feet of gas at this drop in pressure, so it is natural to assume that this quantity of gas must be entering the lower sand as this is the only point of escape. The lower sand has a gas volume itself, as shown by the increase of the open flow of the well, so it must also have some pressure and resist the entrance of the upper gas. The pressure of the lower gas cannot be exactly determined by test, but it is certainly less than 440 pounds, the present shut-in well pressure, and it should closely approximate 250 pounds.

This low pressure sand directly under one of twice the pressure is difficult to explain. The only drilling in the area about which there are any doubts as to the proper care of the sands was on a well one location away that had the pipe frozen and blew wild for a few weeks before being successfully mudded. As this well was heavily loaded with mud, and no other wells show a lower initial rock pressure than 550 pounds, this low pressured sand occurrence must be natural.

No efforts to prevent the waste of the high pressure gas into the lower sand have been made as yet. The well is being carefully watched for any clews that will aid in future operations, but it is still operating without evidence of any changes. From all indications, this well could be best operated by plugging back about five feet, and producing the upper gas until its pressure has declined to closely approximate the lower sand pressure. The well can then be deepened and the two gas strata produced together.

This strong indication of two sands of different pressures being separated by so thin a shale break makes one wonder how many wells have been operated with a large part of their volume dissipating into another sand. Such a waste must run into large figures in all the gas fields combined. The gas apparently wasted may eventually be recovered at a lower pressure from the second sand, but the boosting of the pressure that may be necessary will cause an added expense.

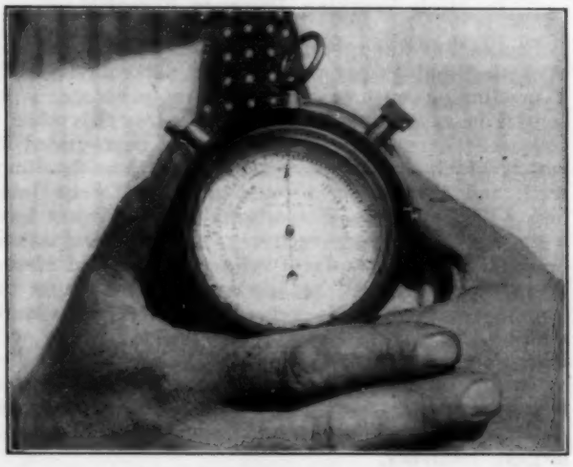
The idea held by some operators that a gas well takes care of itself may be quickly dispelled by a consideration of what is being accomplished through proper care and operation. Operators adopting such methods will find themselves discovering and recording many interesting facts about gas wells.

"Smelling" Out Gas Leaks

By Frank H. Williams

HOW is a gas company to know when there is a leak in a gas main until the leak becomes so great that the odor of the gas is noticeable to every passerby?

It is important to the gas company to find leaks quickly so as to save gas that would otherwise be wasted and so as to obviate great gas explosions. And for the purpose of "smelling" out gas leaks a highly sensitive Gas Leak Indicator is used. As soon as the gas gauges show that there is a leak somewhere along the line, the leaks are traced to their sources by driving small holes at regular intervals along a main, placing the Gas Leak Indicator on each one and then seeing whether or not the indicator indicates any pressure. If there is any registration, then other test holes are put in at lesser intervals until the spot of heaviest flow is indicated. There the main is dug down to and the leak repaired as speedily as possible.



Gas leak indicator

The Gas Leak Indicator consists of a graduated dial opposite an extremely sensitive diaphragm. The pressure of gas reacts on this diaphragm causing it to contract or expand according to the kind of gas involved. If a registration is shown on the "light gas" side of the dial it indicates "fresh" gas from the mains. If in the other side it indicates "stale" gas, or sewer gas.

Oxide Purification

By Dr. Gustav Offe, Cologne, Germany

Das Gas und Wasserfach, 1928, 222-4

The following article is an account of certain experience gained in the Cologne gas works in the dry purification of gas, especially with respect to the Prussian Blue content of the spent oxide. The German Association of Gas Chemists and Engineers has been devoting much attention to the oxide purification problem within the recent past, and this article is one that has been called forth by the activities of the Association. It contains much information of interest to the American gas engineer.—Editor.

FLUFFING-UP agents have never been used in the Cologne gas works. When such substances are mixed with the oxide, the reasons for the impenetrability of the oxide are never accurately ascertained. The agglomeration of the oxide into balls is due to the double decomposition between sulphuretted hydrogen and iron oxide, which takes place with the evolution of heat. The tension of water vapor in the gas is greater when the latter is warm than in the cold gas. The warm gas can therefore absorb more matter and it removes this additional water from the oxide mass, which is thereby frequently agglomerated into balls. Increase in pressure consequently results, which may make it necessary to remove the box from operation. The formation of balls of oxide may, however, also be explained by the fact that even when the greatest care is taken in filling the boxes the layers of oxide are never so uniformly distributed that the gas flows through all the layers in an entirely uniform manner. Hence the gas seeks paths of least resistance and flows through them until the water in the neighboring oxide is partially absorbed, and the oxide is itself formed into balls due to the conversion of the sulphuretted hydrogen in the gas into sulphide of iron in the mass.

The gas now seeks new paths of least resistance and the same process is followed through. Finally the pressure within the box is materially increased. This is also due to accumulations—nests—of entirely unused oxide, which are only discovered when the boxes are emptied. Thus unused oxide is generally found at those places where too high pressure existed from the very beginning of the operation. Hence a certain amount of moisture is required in the oxide to reduce its tendency to ball together and to prevent increase in pressure. When this moisture is lacking various materials, known as fluffing-up substances, are added in order to loosen up the mass. It is also evident from what has been mentioned above that the lumps of oxide are formed at those spots where the mass has been most active. They are hence the most valuable from the standpoint of resale value. These lumps, which give the most trouble in their reworking, for the reason that they must be broken up into fine pieces, are best separated from the rest of the mass and sold for their valuable chemical content.

The question now arises as to what happens when the mass is sprinkled with ammonia. It is known that the iron oxide compounds are precipitated in the form of hydrated iron oxide by the action of the ammonia, when they go into solution as salts combined with acids. Hence the value of the purifier mass is increased. It is, however, thought most advisable to avoid using ammonia, for the reason that sulphocyanides are formed when it is used, for which there is no market at the present time.

It is assumed then when the freshly-charged purifier box is placed at the end of the series through which the gas flows and when this box is gradually moved forward in the series as it becomes more and more contaminated with the impurities taken from the gas, a slow conversion of the oxide into sulphide takes place. It must then also be correct that the oxide, which has reacted once, is most active after it has been preliminarily subjected to double decomposition, for the reason that all iron molecules work better in the bi- or tri-valent form. It is therefore assumed that too high temperatures must not exist during the revivification of the mass. The amount of air added is also limited to three per cent in order to assist the revivification and to accomplish this partly in place.

However, the desired result cannot be obtained when the method of operating the boxes is as indicated above. As long as sulphuretted hydrogen is present in the gas, double decomposition must take place with the formation of iron sulphide. It is only when sulphuretted hydrogen is no longer present that the reformation of iron oxide can take place. If the last purifier box is filled with fresh, unused oxide, then revivification is impossible for the reason that no iron sulphide is present. If the position of this box in the series is moved further forward and sulphuretted hydrogen is absorbed by its contents, then again revivification cannot be carried out for the reason that sulphureted hydrogen forms iron sulphide. The first time that revivification can be effected is when the content of sulphuretted hydrogen in the gas varies, when the gas, free from this substance for the time being, enters a box in which iron sulphide has shortly before been formed, or when the oxygen of the gas is passed through a spent box on whose contents sulphuretted hydrogen can not longer act.

It is, therefore, necessary to pass the gas through the series of boxes in the correct manner so that the oxygen content of the gas is made to do its

work, and it is further necessary to avoid too frequent disturbance of the path of flow of the gas through the boxes. The changes of the flow of the gas through the boxes must be no more than twelve to thirteen times from the freshly charged box to the completely spent box. If a box, filled with fresh oxide, is used as the initial box in the series and allowed to remain in that position for three days, then, within this time, it absorbs almost all of the sulphuretted hydrogen from the gas. If the position of this box is next shifted so that it is second in the series a portion of the sulphide of iron can be regenerated, for oxygen is present in excess. The process is repeated until the oxide is completely spent. The method of working can best be understood from the following.

The purifier system consists of four boxes, three of which are in service and one of which is used as reserve. Then, from the first to the third day one change is made, arrangement of the boxes in the series being 1, 2 and 3, with 4 in reserve. From the fourth to sixth days a second change is made and the arrangement of the boxes in series is 2, 3 and 4, with 1 in reserve. From the seventh to the ninth day a third change is made, arrangement of boxes being 3, 4 and 1, with 2 in reserve. From the tenth to the twelfth day a fourth change gives an arrangement of the boxes, 4, 1 and 2, with 3 in reserve.

In order to determine the degree of revivification, the percentages of hydrogen and sulphuretted hydrogen in the gas were established as follows:

One hundred cubic meters (3,500 cubic feet) at inlet to boxes contained 0.7 per cent of oxygen and 0.6 per cent of H_2S, by volume.

After the first box the content of oxygen was 0.6 per cent, and of H_2S, 0.14 per cent.

After the second box the content of oxygen was 0.5 per cent, and of H_2S, 0.0 per cent.

After the third box the content of oxygen was 0.4 per cent, and of H_2S, 0.0 per cent.

The decrease amounted to 0.3 per cent of oxygen and 0.6 per cent of H_2S.

Chemical Changes During Purification

The chemical changes that take place during the purification process are represented in the following formulae:

(1) $Fe_2O_3 + 3H_2S = 2FeS + S + 3H_2O$.

(2) $2FeO + 2H_2S = 2FeS + 2H_2O$.

(3) $2FeS + O_2 = 2FeO + 2S$.

One volume of oxygen is therefore able to destroy the action of two to three volumes of sulphureted hydrogen, according to whether the iron is present in the ferrous or ferric condition. This is also indicated from the results given above and the inference is that the regenerating process proceeded in an entirely normal manner. In spite of this fact the author recommends that the reserve box be shunted into the series wherever it is possible, for the oxygen in the gas is also able to convert the iron sulphide back again into oxide.

However, when this practice is carried out, certain disturbances of operation result due to the water vapor in the gas, particularly when the mass is very reactive; that is, when it contains a large amount of active iron oxide. If the temperature rises too high, then the evaporation of the water is likewise too great. If the gas enters at the top of the box, then the water vapor is evolved not only at that point, but also in the lower layers of oxide, which are likewise dried out, and absorb only slightly less amounts of sulphur and Prussian Blue than the top layers.

Attempts are made to prevent this from happening by changing the direction of the flow of the gas, so that it proceeds from the bottom to the top of the box at times, and at other times, from top to bottom. Water is also sprayed into the gas, or rather the gas is made to pass through a fine spray of water, but it is not conclusive whether or not this practice is effective. An excess of water is, of course, undesirable, but it is possible that some of the trouble can be avoided by this practice.

Characteristics of the Oxide

The author now wishes to emphasize the importance of the character of the oxide. He has observed that when the oxide is tested with sulphuric acid it is heated up very markedly. This temperature should be determined, for it is a highly important characteristic from the standpoint of the reactivity of the oxide. Highly reactive oxides should be mixed with spent oxide in the ratio of three to one, in order to reduce the reactivity. The reason for this is principally to avoid the evaporation of water. Another very important reason has to do with the formation of Prussian Blue.

The reactions between sulphuretted hydrogen and both ferrous oxide and ferric oxide have been indicated above. A mass, which contains the iron in the form of ferric oxide, must be considered to be fifty per cent more valuable than one which contains the same amount of oxide in the ferrous state. Oxides with a high content of ferric oxide are those which heat up markedly in reaction with the sulphuretted hydrogen and hence whose activity it is necessary to reduce. There is a certain difference in the formation of Prussian Blue in artificially prepared oxides. This can be easily seen from the following equation indicating the formation of Prussian Blue:

$$2Fe_2O_3 + 3FeO + 18\ HCN = Fe_4Fe_3(CN)_{18} + 9\ H_2O.$$

Two molecules of ferric oxide and three molecules of ferrous oxide are thus required for the formation of one molecule of the Prussian Blue. If ferric oxide is alone present in the oxide mass, then sufficient ferrous oxide will be lacking. It must therefore be gradually formed by the reducing action of sulphuretted hydrogen, thus: $Fe_2O_3 + H_2S = 2FeO + S + H_2O$.

It is consequently clear that at the beginning of the purification process when fresh oxide is being used the condition prevails where the formation of the Prussian Blue is very difficult. It is hence advisable to mix the fresh oxide with spent oxide containing considerable ferrous oxide.

Oxide Analysis

An analysis of a fresh, artificially prepared oxide gave the following results: silica, 2.73 per cent; ferric oxide, 32.4 per cent (contains 22.71 per cent of ferric iron); ferrous oxide, 0.87 per cent (con-

tains 0.68 per cent of ferrous iron), water, 50.30 per cent; soda, 4.08 per cent; calcium oxide (lime), 0.50 per cent, the difference to make up 100 per cent being loss on ignition. When the percentages are converted to the dry basis, it is found that there are in all 67.08 per cent of iron oxide compounds containing a total of 47.05 per cent of iron, of which 45.69 per cent is ferric iron, and 1.36 per cent ferrous iron.

In accordance with the equation for the formation of Prussian Blue, the 1.36 grams of ferrous iron will give 6.98 grams of Prussian Blue, and this will require an additional 1.81 grams of ferric iron, which is subtracted from the existing 45.69 grams, so that a remainder of 43.68 grams of iron is available for removing the sulphur from the gas. This amount of iron in the ferric form will absorb 37.79 grams of sulphur.

Absorption Ratio

Figured on the basis of one hundred grams of the dry oxide mass, the increase in the weight of the purifier mass amounts to 3.81 grams of cyanogen and 37.79 grams of sulphur, making a total of 41.60 grams; meaning that the weight of the mass has been increased from 100 to 141.6 grams. The percentage of oxide available for the formation of Prussian Blue is therefore reduced to 4.93 per cent and, for combining with sulphur, to 26.69 per cent. When fresh oxide is tested with pure sulphuretted hydrogen gas, the sulphur absorption is generally from 26 to 30 per cent, figured on the dry mass.

It is important to establish now just how the absorption is divided between cyanogen and sulphuretted hydrogen, which means whether or not the sulphuretted hydrogen, which is present in great excess, does or does not affect the formation of Prussian Blue. ence, foul gas was passed through the purifier mass of the above composition, this gas containing large amounts of cyanogen and sulphuretted hydrogen. The spent oxide was revivified in special apparatus and gave the very surprising figures of 40.63 per cent of sulphur and 1.61 per cent of Prussian Blue based on the dry substance. According to operating experience, an increase of the sulphur in the dry mass of approximately twenty-five per cent and an increase of the

Year.	Frequency of use of oxide.
1922	Reused three times.....
1923	Reused three times.....
1924	Reused three times.....
1925	Reused three times.....
1926	Reused three times.....

Prussian Blue content of about three hundred per cent was established. The operation of the boxes according to the system of reversing the flow of gas through them is, therefore, considerably more advantageous. The conclusion can be drawn that the fresh oxide, due to lack of sufficient ferrous oxide, cannot absorb cyanogen as well as those oxides which contain cyanogen in excess and are located in the other boxes in the series. The reason for this is that sulphuretted hydrogen was almost completely absorbed in the first box.

A practical example is cited to illustrate the importance of this conclusion. The foul gas contained approximately only 0.06 to 0.2 ounces of cyanogen and one ounce of sulphuretted hydrogen per hundred cubic feet. If it is assumed that the ratio of cyanogen to sulphuretted hydrogen was 0.06 to 1.00, then the one ounce of sulphuretted hydrogen is present in about seventeen times the concentration of the cyanogen. Both gases are able simultaneously to combine with ferric oxide and ferrous oxide and the cyanogen gas under these conditions forms Prussian Blue. In the ratio of 0.2 to 1.0 the conditions are still more unfavorable. for large quantities of cyanogen still pass through the oxide, due to the reason that sufficient ferrous oxide is by no means present to combine with it. The box, containing fresh oxide, can, of course, absorb large amounts of sulphuretted hydrogen, but it is not possible to form large amounts of Prussian Blue in it. The boxes, which have been operating for a long time, reform ferrous oxide from iron sulphide with the liberation of free sulphur. Inasmuch as ferric oxide is always present in excess, the conditions are more favorable for the formation of Prussian Blue. Hence a long time must pass until the box, filled with the fresh oxide, attains its maximum reactivity. The amount of Prussian Blue formed in this box is small, but the sulphur content increases, which is, however, of slight importance economically.

Fresh Oxide No Longer Used

The author has been observing these conditions for a number of years. He no longer uses fresh oxide in the boxes but mixes the fresh oxide in the proportion of two to three parts per one part of spent oxide. The mixture then contains about seven to twelve per cent of sulphur and from 0.7 to one per cent of Prussian Blue.

In order to afford an idea of the workings of this process, the author gives below some operating results obtained in the Cologne gas works. The spent oxide was changed, generally, three times. The gas making equipment was the same throughout all the experiments and consists of twenty-nine vertical and eight inclined retort benches.

—Average composition of the oxide—		
Water content per cent	Prussian Blue per cent	Sulphur per cent
12.98	4.28	42.69
14.24	4.85	42.25
13.88	3.48	47.86
11.69	4.78	49.11
16.56	5.63	42.20

In conclusion, it can be stated that the large lumps in the spent oxide show places of maximum reaction and are always salable. Fresh oxide must be mixed with spent oxide in the proportion of three to one. The reactivity is thus diminished, so that the oxide does not heat up too quickly and so that only a small amount of water is evaporated. Pressure increase through the box is reduced to a minimum. Furthermore, the cyanogen is almost quantitatively removed under these conditions. In order to effect revivification of the oxide in place in a perfectly sat-

isfactory manner, on the basis of 0.5 per cent by volume of oxygen in the purified gas, the amount of oxygen that must be present in the foul gas is obtained from the following formula:

$$0.5 \text{ volume } \% \ O_2 + \left\{ \frac{\text{Volume } \% \ H_2S}{2} \right\} O_2$$

The value $\left\{ \frac{\text{Volume } \% \ H_2S}{2} \right\} O_2$ disappears in revivification. It suffices for this purpose, for the author has found that when the oxygen content is 0.3% by volume, no further activity of oxygen results.

Office Methods in Gas Companies

XI---Purchasing department record---Part 1

By G. L. Harris

JUST which department is the center of the Gas Company? Some will say the Sales Department, some the Consumer's Accounting Department, and others will think of very excellent reasons for considering still another department the actual center of operations. But none of these departments can be sponsored more sincerely and earnestly as the center of activity than can the Purchasing Department.

Everyone must deal with and through the Purchasing Department. Everything that goes on in the company is reflected by or preceded by the activities of those who do the buying. Past the buyers, the Purchasing Department clerks, the Purchasing Official, there is a parade of every department head and official in the company in the form of his requisitions to buy. And in the files of the Purchasing Department there are papers referring to every department, every office, every activity.

An Important Official

The Purchasing Official then can be and should be an official of real importance. He can guide company policy and activity, he can save money—lots of it—or he can be a rubber stamp whose principal activity is the signing of confirming purchase orders.

For the Purchasing Official acts, on request, for others. The request, properly approved, is the signal for him to act. All too often this signal calls for immediate action. And since the securing of proper approval often conflicts with immediate action we have the subterfuge of the confirming requisition, by which the Purchasing Official is induced to buy before approval of the purchase is secured, or by which, in the natural course of events, the department head buys and the Purchasing Official approves.

To prevent this there must be no excuse given for the confirming requisition at any time. If the department issuing a requisition knows that it will absolutely be handled immediately on its receipt in the Purchasing Department there will seldom be a need for the confirming requisition. The expeditious handling of the requisition is therefore the first point we shall consider in our discussion of Purchasing Department Records.

Speeding the Handling of the Requisition

Where the approval of a requisition requires a signature other than that of the head of the immediate department, we have found it advisable that the requisition be written in three copies. One copy, the third, goes to the files of the originating department. One copy, the original, is forwarded for approval. And one copy, the second, goes direct to the Purchasing Department. Then the buyers can act and can often be ready to place the order by the time the approved copy is received. The advantage is obvious.

And the form of the requisition deserves careful consideration too. For this is the work sheet of the Purchasing Department. It should be designed primarily with this function in view. Therefore, it should provide spaces on which the buyer may enter any information that will help him in buying. Three spaces are absolutely essential to effective control of purchasing, namely:

Space for last cost information,
Space for competitive prices,
Space on which to indicate vendor.

No requisition will fit every Gas Company's needs, but for those who are particularly interested in the design of this form we wish to recommend the requisition used by the Georgia Power Company of Atlanta. And we would recommend also consideration of their method of filing requisitions within the Purchasing Department.

Each department of the company is assigned a code letter and a number series, e. g. Advertising—A 1000, Sales—S 1000, Stores—SS 1000.

A separate number series is assigned to each person authorized to originate requisitions. Thus if there are two persons in the sales department with this authority, one will use the series S-1000 and the other may have the series S-2000 or 3000. If two number series are used within one department they must be far enough separated that they will not overlap before the end of the year.

This is the eleventh of a series of articles by Mr. Harris. The twelfth article will appear in our next issue.

Now, if requisition S-1642 is received, the number shows at once that the request to buy comes from the Sales Department, that this is the six hundred and forty-second one this year, and the number tells also just who should have signed the requisition.

With this coding system any clerk in the Purchasing Department can check approvals, can answer questions about requisitions, and can quickly locate any requisition in either the pending or the completed file.

For, just as in every other department, there must be pending files in the Purchasing Department for all papers which are a part of the current office activities. And just as in the case of all other pending files there must be a follow-up system which keeps requisitions alive until they have completely served their purpose.

immediate value to those who do the buying. In all too many cases this record presents the details of more or less remote history, and in all too many cases it is kept up by clerks who have this duty assigned to them to fill in any slack periods that may occur.

Importance of Accessibility

We cannot emphasize too strongly the fact that the information in the Purchase Record should be instantly accessible, perfectly organized, and absolutely up-to-the-minute. Consequently the record should be kept by trained clerks. It should be easy to maintain so far as clerical work goes, and yet it should be carefully compiled and permanently kept.

That we are not alone in this belief is evidenced by the fact that many Gas Companies have invested thousands of dollars in this record and are

ARTICLE Hammers SIZE OR KIND Handles PART NO. 86

SPECIFICATIONS Machinists' Hammer Handles

PURCHASE RECORD — KARDEX SYSTEMS

	VENDOR	ADDRESS	PHONE		VENDOR	ADDRESS	PHONE
1	Jones Handle Co.	Chicago		4	McCarthy Handle Co.	City	Ma.0164
2	N.Y. Wood Turning	New York		5			
3	Harvey Reynolds	Atlanta		6			

DATE	REQUISITION No.	ORDER No.	VEN.	QUANTITY	LIST	DISCOUNT	NET	UNIT	F. O. B.	TERMS	REMARKS
12/20/25	SS 2462	8721	2	90 doz	19.50	10-10	15.80	Doz.	N.Y.C.	60%-10	
4/16/26	SS 1341	10216	1	60 doz	20.00	10-10-5	15.39	"	Chic.	60%-10	
3/15/26	SS 1876	11614	4	60 doz	20.00	10-10	16.20	"	Dec.	60%-10	

ARTICLE Hammers SIZE OR KIND Handles PART NO. 86

This purchase record form is widely used in gas companies. The numbers and letters on the visible margin may be used as follow-up reminders for contract renewals, requests for price lists, etc.

These matters, however, have been discussed in detail in preceding articles in this series. And we wish to devote our attention particularly in this article to the one record to which every requisition should go immediately upon its receipt in the Purchasing Department, namely, The Purchase Record or as it is often called "The Purchase and Cost Record."

The Purchase Record

Every Purchasing Department has a Purchase Record. Some are poor, many are indifferent, and a very few are really good, really of actual and constantly adding to their investment both in trained workers and in equipment.

The Purchase Record is best kept in a visible file. A standard, widely-used form for this record is illustrated here. It contains the information necessary to the Purchasing Department of practically every Gas Company as determined by wide experience and actual use in many companies of different size.

The name of the article, and any description as to size and kind, is provided for on the visible margin. The card is printed for use on both sides. When it

is filled on both sides most Purchasing Departments place it in the back of the preceding pocket in the visible card drawer, and insert a new card in the proper pocket for continuing the record. In this manner the continued story of the purchases of any item over an extended period of time can be kept in the active record.

Space is also provided on the Purchase Record Card for the vendors who may be called upon to supply the article listed on the card. Each vendor, as can be seen, is designated by a number; and when a purchase is entered on the card, the clerk merely places the appropriate number in the column headed "Vendor." This makes it unnecessary for the purchase record clerk to write out the name of a vendor for each separate purchase.

The Purchase Record thus serves as a Source of Supply Record, and we believe that this listing of the vendor's names on the purchase record card is the best solution to one of the most discussed record problems in the Purchasing Department. We know that those Purchasing Officials in Gas Companies who have endeavored to maintain a separate Source of Supply Record, listing all of the vendors of all of the commodities they purchase, have almost without an exception abandoned the attempt. They have found it an endless task.

Does not every Purchasing Official have a Source of Supply Record in his catalogue file, on his quotation file, and in his telephone directory? Add to this the list of vendors on the purchase record card. And, as many Purchasing Officials have done, add also a special card, one that will fit behind the purchase record card in the visible pocket. Enter on this card any special information concerning the vendors listed, as developed by experience in dealing with them, together with any detailed instructions as to buying a particular item of material. The hole on the visible margin of the card (see illustration) is provided so that such a "special information" card, if provided, will show through and attract the attention of the one referring to the file. This card is, of course, of a distinctive color, so that it can readily be seen. And in combination with the Purchase Record it presents a Source of Supply Record which we have found to be completely adequate.

The Requisition and the Purchase Record

When the requisition reaches the Purchase Record it usually contains only the bare request to purchase certain material. When it leaves this record it should contain all of the information which the Purchasing Department has that will help the buyer to place the order most expeditiously and advantageously.

It should show the date, quantity, price, and vendor of the last purchase of the material. It should show sources of supply. And if the material is purchased on contract terms from a particular vendor, this should be shown.

The purchase record card must show this information, and in the visible record it is well also to call attention to particularly important facts by means of colored signals. For example, a signal of one color may mean, "This material is always bought on contract"; another color may mean, "Money can be saved if this material is shipped in a special way. Enter shipping information on the requisition."

Truly the Purchase Record is the heart of the Purchasing Department. A record of purchases is absolutely essential. And in a very short time such a record becomes valuable beyond any computation. For it would be impossible to retrace steps by which a good Purchase Record is built up, built so that it comes to represent a summary of the eternal vigilance of the Purchasing Official and his helpers in protecting the interests of the Gas Company as a whole.

A Purchase Record cannot be bought. It must be built, step by step, day by day, purchase by purchase. It is the first of every requisition, and it is a stop that should quickly provide definitely reliable working information for those who spend the Gas Company's money.

But there are other important records in the Purchasing Department and a fair discussion of them will require a separate article. Therefore, in the next issue of The American Gas Journal we shall deal with the most prominent of them, namely. Quotation Records, Purchase Order Files, Contracts and Catalogues.

SMOKELESS COMBUSTION OF BITUMINOUS COAL IN A LARGE HOUSE-HEATING BOILER

That a reduction of the smoke emission can be obtained without additional fuel cost, and with a lowering of it because of better efficiency, has been illustrated by recent tests conducted by United States Bureau of Mines engineers with a large heating boiler. In the first series of tests the furnace construction was of the simple grate type suitable for burning coke or smokeless coal. When using bituminous coal and giving the boiler such attention as might be expected in service, it was not possible to prevent the emission of objectionable smoke.

TROUBLESOME COMPOUNDS PRESENT IN MANUFACTURED GAS MIGHT BE CONVERTED INTO VALUABLE PRODUCTS

In the course of a study by the Organic Chemical Laboratory of the United States Bureau of Mines, Department of Commerce, of the cause of service gas meter stoppage, it developed that the main cause of the trouble was gum formation from indene and styrene. These compounds are always present in manufactured gas. In freshly made gas they are very volatile and readily carried in the gas stream, but on standing in contact with other gas constituents they tend to "polymerize," or form gums. Gums are thus formed in house meters, making removal of these for cleaning necessary.

A recent survey of the gas industry develops that there are eight million pounds per year of styrene and twice that amount of indene available if completely removed from the gas. These compounds could be used in the manufacture of plastics. Styrene could be used in the manufacture of perfumes and possibly also in rubber manufacture.

Menace of Government Competition

By Philip H. Gadsden

Vice-President, The United Gas Improvement Co.

A MASTER craftsman of the art of advertising calls it the "sword arm of business." It is an apt description. From the remotest time when wares and merchandise were first bartered, extolling their merits has been part and parcel of the processes of trade. Digging in the ruins of ancient Carthage explorers find the claim of a Punic advertiser that "our lamps are the best made in Carthage." And even to times far more remote the lineage of the art promotive of trade may be traced.

Throughout the history of business advertising has been the chief agency for developing new markets and the main reliance in the constantly widening field of competition.

It is a far cry from the primitive manufacturer of stone arrowheads, fashioning his product with a flint hammer by hand, to the highly mechanized factory of today. Advertising has kept stride with this progress. Indeed, it may truthfully be said that it has set the pace in much of this progress.

Where once your advertiser was a bawling huckster filling the market place with his ballyhoo, the media of modern advertising range all the way from the press to gold embossed lipstick labels; from electrical displays to art posters; from a direct mail campaign to a trade exposition; from sky writing to broadcasting in the air.

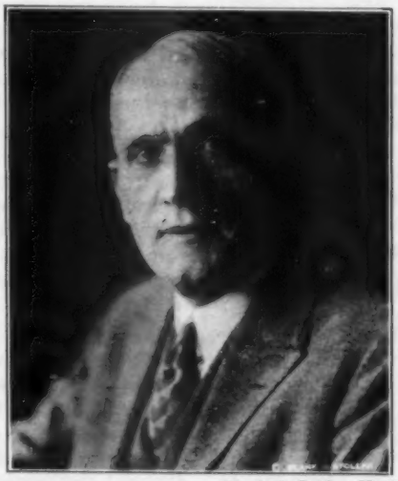
Both in social and economic progress the creative force of advertising has been literally tremendous. No other factor has contributed more to our modern industrial progress of mass production at low unit cost. Consistent advertising has provided the mass market to use the products of an industry geared to high productive capacity. It has nationalized, even internationalized, markets.

The motor car is a peculiarly apt illustration. In very truth it may be described as an industry that advertising, in no small measure, has made. In its development, management, finance and advertising sat as equals about its council board. It is typical of the results of quantity production, made possible by national and international markets. These results are a continuing increase in the excellence of the product and a continual reduction of unit costs to the user.

Consider cameras. The manufacturer of a well-known camera, nationally and internationally advertised, is today making a far better camera, selling for $10, than the camera made by the same manufacturer and sold for $25 several years ago.

Take oranges. When the orange marketing association first enlisted advertising to get for the orange a more favored place on the nation's menu it is estimated that each American ate 39 oranges a year. Today, after several years of intensive advertising, the average consumption of oranges is 58 for every man, woman and child in the country. Mass marketing, again, with advertising as the conjurer.

Take mechanical refrigeration. According to figures, recently published in "Motor," 600 units of mechanical refrigeration were sold in 1914. Last year 365,000 units were sold. Five years ago $7,800 was spent in journals of national circulation advertising mechanical refrigeration. Last year a million and a half was spent.



Blank & Stoller, N. Y.

"The issue is squarely presented—shall the Government confine its activities to the political field and leave the field of business to the initiative and enterprise of its citizens? If the Government enters into any industry, private capital, proverbially timid, will retire from it."

It is estimated that the electric light and power and gas industries spend approximately twenty millions a year for advertising, with the result that the coal stove has been practically banished from the kitchen, and gas and electric appliances of all kinds are rapidly taking the drudgery out of American life.

Illustrations of the contribution of advertising to mass production through mass marketing; and, indeed, of its contribution to the comfort of modern living, could be multiplied many fold, but you gentlemen know these stories far better than I, so let us pass to the consideration of advertising as a factor of every-day living.

As a stimulant to mass production advertising has worked mightily toward high employment and wage levels. This in itself is an economic and a social achievement of the first magnitude.

Address given at Convention of International Advertising Assn., Detroit, Mich., July 9, 1928.

The American standard of living is an eminent achievement. High wage and high employment levels make it possible. It is higher than ever known elsewhere in the world at any time. Millions, today, enjoy comforts and luxuries—take them as a matter of course—that were beyond a potentate's purchase a few centuries ago.

Advertising creates desire, which requires mass production for its gratification, which, in turn, makes for high wages and higher standards of living.

This is but a single phase of the story, but it is typical of them all.

Advertising, moreover, has proved a potent force in a new alignment of business standards and practices and a proper evaluation of the relations of business with its public. Business conducted in the bright, revealing light of publicity cannot engage in sharp practices. None has better phrased this than Ernest Elmo Calkins in his book "Business the Civilizer."

"A business which advertises," says Mr. Calkins, "which puts its name before the public and puts its trade mark on the goods, has entered into a contract with the public. It must live up to the contract. It must make good. This is beneficial. It insures better goods and better service."

Advertising's Sound Basis

As an exponent of proper trade and business practice advertising is no novice; it speaks out of the fullness of a bitter experience, for advertising once prostituted its great gifts to the dirty chores of the charlatan. But advertising has cleansed its garments of this stain and stands today with a code of ethics that makes it a dynamic advocate of business confidence, based on fair dealing and honest service.

The investment banker is no more vigorous to close the market place to the hawker of fake securities, the bar is no more alert to outlaw the shyster, the medical faculty is no more zealous to ban the quack, the ministry is no more ready to unfrock the religious faker than is the preponderant sentiment and practice of the advertising procession, as such, to outlaw advertising quackery.

Long the potent aid of the manufacturer in his competition with his fellow manufacturer; long the super salesman of the merchant in his rivalry with his fellow merchant; long the pioneer of new markets for the practical application to new and wider uses of the products of scientific and inventive genius, as the electrical industry can well testify, advertising now becomes a most potent weapon in the arsenal of a new competition, in which industry tries its mettle against industry, each bidding for a larger share of the consumer's dollar; and in which community vies with community and city with city, each ambitious to achieve a larger place in the industrial scheme of things.

Thus manufacturers unite to advertise their common product.

Paint manufacturers tell us to use more of their product, and assure us that "Save the surface and you save all."

Cement manufacturers unite to press the claims of their material in competition with lumber and steel and the synthetic building substitutes, and each of these, with group advertising, gird for the inter-industrial competition.

Exhorting us to "Say it with flowers" the florists, through co-operative advertising, increased their business amazingly.

The jewelers, co-operatively, urge us to buy jewelry—"the gift eternal."

Oil and gas and coal are vigorous competitors to heat America, and electricity and the ice man are vigorous rivals for the task of keeping it cool.

And so throughout the industrial and business drama competition is more intense and more skillful, and advertising is its tutelary genius.

Competition Has Created Demand

It is competition in business which his created the increased demand for advertising. And advertising, in turn, has been the chief reliance of business successfully to meet competition. It has been a powerful agency to capture new fields and to retain them under the intensive competitive conditions of modern business.

There is a new competition which threatens American business at this time. To meet this new competition the traditions of one hundred and fifty years, the experience and training of American business, have left us totally unprepared. I refer to competition by the Federal Government—the increasing efforts to inject the Federal Government into the field of business.

We have been taught to believe that our government was established to insure a free field and a fair contest for the interplay of the initiative and enterprise, the self-reliance and industry of its citizens. On this theory and relying upon this philosophy, American business has constructed this amazing industrial civilization of today.

But signs are not wanting that there is developing in the United States on the part of certain groups a demand that we abandon this principle which up to the present time has distinguished our form of government from all others, and embark upon a line of policy which would sap and undermine that initiative and enterprise which is characteristic of us as a people. In this new competition there can and must be no compromise. It is a war to the end.

The Truth of the Matter

There are two distinct schools of political thought in this country today. It is a conflict of two utterly antagonistic ideas—a struggle for supremacy between a thinly disguised socialism and the traditional policy that has enabled this country, in a century and a half, literally to amaze the world with its economic and social progress. It is the struggle between private ownership and government ownership.

The issue is squarely presented—shall the Government confine its activities to the political field and leave the field of business to the initiative and enterprise of its citizens? If the Government enters into any industry, private capital, proverbially timid, will retire from it.

The only thing which can shake the credit and disturb the progress of our industrial development

is the menace of Government competition.

The Muscle Shoals Bill, passed by both houses of Congress but which the President refused to sign, proposed to put the Federal Government into the fertilizer business. It also authorized the Government to generate and distribute electrical energy in competition with private industry.

Under the Merchant Marine Bill it was proposed that the Government should engage in the insurance business.

The Swing-Johnson Bill for the development of the Colorado River would authorize the Government not only to enter the electric power field on a gigantic scale, but to provide water on a commercial basis for irrigation and water supply purposes.

Which will be the next field of business to be invaded by the Federal Government?

The main objection to such a policy on the part of the Federal Government is not that Government operations are notoriously inefficient or that it may occasion financial loss to the industry faced with such unfair competition, but that it destroys the basic principle upon which the whole of American business has been built. It strikes at the key stone of our industrial arch. It seeks to graft upon the political structure of America the outworn socialistic theories of the old world which have contributed so greatly to the present economic conditions of Europe.

Cortelyou's View of the Situation

George B. Cortelyou, ex-Secretary of the Treasury, has recently characterized the entry of the Government into business, whether national, state or local, as "constitutionally unsafe, politically unwise, economically unsound, and competitively unfair."

Let me direct your attention for a moment to a little discussed phase of this aspect of the question. Much has been said from the viewpoint of the public's right to efficient service and from the viewpoint of private management and stockholdership, but little has been said from the viewpoint of the employee.

The great army of employees of private business and industry constitute a large group of the public. The rights and interests and welfare of the employee are vitally involved in proposals for Government ownership.

Under private ownership the lad who, today, enters an establishment as an errand boy, may, in future years, become the head of the house, if he has it in him. The epic of American business is full of such achievements—the section hand, the station agent in the lone way station who becomes the president of the railroad; the bank messenger who becomes the chairman of the board; the iron puddler who becomes a dominant leader in steel; the grocer's clerk who becomes the presiding genius of a nation-wide chain of mercantile establishments—and so on.

Does Government ownership offer such spur to the ambition and initiative of the employee?

Not at all. In Government, preference goes either by political favoritism or a rule of seniority that takes little or no account of merit and discounts initiative. Imagine the power industry of the United States, for example, in the hands of employees whose proper ambitions are thus shackled—or the railroads, or the steel mills, or any great agency of business!

The Government neither pays taxes nor advertises. Mass production by the Government means higher and not lower unit costs, frozen wage scales, and stationary instead of advancing standards of living.

The traditional policy of this country on Government in business has been officially and convincingly declared by President Coolidge, as follows:

"If it is desirable to protect the people in their freedom and independence, if it is desirable to avoid the blighting effects of monopoly, supported by the money of the taxpayer, if it is desirable to prevent the existence of a privileged class, if it is desirable to shield public officials from the influence of propaganda and the acute pressure of intrenched selfishness, if it is desirable to keep the Government unencumbered and clean, with an eye single to the public service, we shall leave the conduct of our private business with the individual, where it belongs, and not undertake to unload it on the Government."

What a challenge this presents to the advertising genius of America to protect and preserve from destructive competition by the Government this great industrial civilization which it has done so much to create. This new competition of Government ownership must be met and overcome by the same intelligent and sustained advertising methods which have proved so successful in meeting each different kind of competition as it arose. What a privilege is afforded and sustained advertising methods which have proved to employ your talents and abilities to insure that the fundamental principles of our Government shall not be undermined!

Years ago it was truthfully said: "Give light and the people will find their own way." Business, with advertising and publicity as its light-giving beacons, must take the leadership in this new competition—this clash of utterly irreconcilable ideas. It is a contest in which truth must prevail, but the way to truth must be made plain so that none need err therein.

Let us, therefore, marshal our resources to arouse an enlightened public opinion, which is all that is necessary to guarantee a continuance of this basic principle of our industrial life.

FIFTH TALLEST BUILDING HEATED WITH GAS

The American Insurance Union Building in Columbus, Ohio, is the fifth tallest building in the world, and is the largest building heated exclusively by gas.

The structure is fifty stories high and towers 555.5 feet above the street.

The plant is equipped with three 400 horsepower boilers. After the successful manner in which two gas-fired boilers passed the severe tests to which they have been subjected, it is planned to put the third boiler on gas also. Under each boiler are three entrained burners. The heating and power plant is located 40 feet under ground, being on the second level below the street floor of the skyscraper.

The Boston Consolidated Gas Company's new building had heretofore been the largest gas-heated structure. The cubic content of the A. I. U. building is more than twice that of the Boston building.—People's Gas Club News.

Pipe Joints and Their Characteristics

By H. Y. Carson

THERE was a committee appointed about six years ago known as the Technical Committee of the Southwestern Public Service Association headed by F. C. Armbruster, vice-president and general manager of the Southern Cities Distributing Company of Shreveport, Louisiana. For the first time I think in the history of gas distribution a definite program of research was mapped out by this committee, and I think it would be a very good thing simply to read a part of the plan outlined for study and then it will be possible for me to discuss what has been done on that plan up to the present and also project some new problems that probably are worth while for future study. The committee report given at the 1926 meeting in Galveston had this statement:

"In the search for knowledge that can be definitely applied to gas distribution problems, particularly in the Southwest, your committee has been impressed with the thought that each weak link should be singled out for definite study. Leakage surveys have repeatedly revealed that much of the unaccounted for gas is lost first from defective joints and, second, from corroded or defective house services.

"The joint situation is very pronounced where manufactured gas distribution systems are converted to natural gas. It is not unusual to find every joint in an old system defective to a greater or less degree.

"Your committee made out a program for study, using rubber rings in B & S joints; embracing:

"(a) History of rubber compounds; (b) Physical properties of rubber compounds; (c) Description of tests with rubber rings; (d) How long will rubber last in B & S joints?"

Another item singled out for study was the use of jute, hemp and flax in B & S joints. Tests of these materials were made and the problem of the effect of "wet" and "dry" gas on jute, hemp and flax was considered. Whether braided jute or loose jute is preferable, and how long may jute be expected to last in the joints were some of the pertinent questions which the committee undertook to solve.

Hole's Opinion

Just to show you that the work of your technical committee has made a nationwide impression on the minds of those interested in gas distribution I shall quote from the recently published "Handbook of Cast Iron Pipe" (page 216).

"RUBBER RINGS FOR BELL AND SPIGOT JOINTS. In Germany, France and England, where experiences with vulcanized rubber in bell and spigot joints range over periods of fifty years or more, the reports dealing with their durability draw the interesting conclusion that gas will not destroy vulcanized rubber in such joints.

"Mr. Walter Hole has proved in England by rather complete and scientifically conducted tests (see article by Mr. Walter Hole on 'The Utility and Durability of Rubber as a Jointing Material for Gas Mains' in Gas Journal (London), November 21, 1923, Pages 504 to 509) that when a rubber ring is put into a bell and spigot gas joint and sealed up, its life is rendered indefinitely long because the ingredients in the gas, consisting of such materials as benzol, toluol, solvent naphtha, petroleum, etc., can do no more than cause the rubber ring to swell or 'get fat' and thereby more completely shut off any leakage of gas through the joint.

"Several special shapes or designs for these rubber rings have been devised to be used in bell and spigot joints, in combination with lead and jute, with cement and jute, and with special materials such as leadite.

A Major Problem

"One of the biggest problems that the gas industry is facing is the problem of preventing leakage or unaccounted for gas in the distribution systems. The development of a suitable vulcanized rubber ring to be used in bell and spigot joints promises to solve this problem in the most economical way and without altering present pipe standards or methods of field construction. Moreover, tests have revealed that this method of making gas joints is equally efficient for high pressure distribution as well as for medium and low pressure distribution. This factor makes it possible to throw into service at any later date an existing low pressure distribution system converted to an intermediate system or high pressure system without any material increase in leakage from the joints that have been constructed to serve for low pressure."

First, let us discuss what the gas men commonly term calking yarn. The jute plant is a plant cultivated in India and Egypt and other tropical countries; hemp and flax are also plants similar to the jute plant. Flax, however, is grown in other than tropical countries; Russia, Ireland and Turkey produce large quantities.

Gas joints have been made for about a century of uncertain materials. When our cement joints came into more general use, it was found that any yarn which had a large amount of oil or tar in it could not be used because that would lubricate the sides of the cast iron pipe or bell and prevent the

---

Abstract of a paper read at the Southwestern Public Service Association Meeting, Dallas, Texas, May 2-5, 1928.

cement from sticking intimately to those surfaces. So the practice grew up of specifying absolutely dry yarns. I have seen a great many samples of what was supposed to be high grade dry yarns, and by analyzing them found them to contain at times ten different ingredients, including cotton sweepings and rotted rope fibers, evidently mixed in some foreign port and sold in some instances at a very high price. It was difficult to find out much about the subject of packing yarns at first because the people who had been selling these materials seemed not at all willing to let it be known that they have substitutions and adulterations.

The United States Bureau of Standards test consists of subjecting these packing materials to a mixture of acids which change them to different colorings. Pure jute comes out a certain coloring, pure hemp comes out a slightly different coloring, and so on down the list.

Looking further into a study of the life of these different plant fibres, I find that it depends upon how much cellulose is in the fibre. Celluiose is broken up chemically by certain hydro-carbons, such as benzol. However, jute and flax fibre is neither rapidly destroyed by oxygen nor the action of the hydro-carbons. It is interesting to trace back historically in our study of some of these materials. The ancient Egyptians apparently knew a great deal about this matter when they wrapped their mummies in the finest of flax and jute fiber linen that could be obtained because they evidently wanted that linen to last ten thousand years, at which time the mummy was supposed to come to life and have some clothing. They knew that whenever these linens were adulterated with material such as sisal. cotton or ingredients from plants of other fibrous nature they would disintegrate in time. They knew these fibers had the power also to resist the hydrocarbons such as asphalt which they put on them. Certain asphalt beds produced a kind of pitch which was used to preserve the mummies and their clothing against bacterial attack. They knew that only the jute fibers and the flax fibers would definitely resist that action.

Life of Rubber Rings

Mr. Walter Hole, a prominent gas engineer of England, in discussing rubber rings, and in forming an estimate of the life of rubber rings in B. & S. joints, shows that such rings are in successful use 50 to 60 years. He obtained some rubber rings from old joints and made tests on them to determine the effect of various ingredients of cool gas on them.

Knowledge of the pipe joint rubber rings was brought to this country in the late 80's and early 90's, when the S. R. Dresser Company made use of that knowledge by producing the rings for Dresser joints. Within the past few years we have had an opportunity to compare the rings made in this country with those produced in England and Germany more than 50 years ago, and have found they correspond very closely. There has been no marked change in the general makeup of the rings. It is easy to see why there should not be any change as these rubber rings were simply produced for the purpose of being put under compression in the joint, and not for the purpose of stretching to any great extent.

Therefore, it is necessary that there be only a relatively small amount of rubber used in the compound that is used for manufacturing such rings. Quite a number of inorganic materials are mixed very thoroughly with the raw rubber. Baking the compound at a certain temperature and for a certain length of time fixes the rubber molecule. In studying the rubber molecule we find some of the most interesting things, from a mechanical standpoint, that can be found in Engineering. Chemically the rubber molecule never has been defined definitely. But from a purely physical standpoint it affords one of the most fascinating studies in modern research. One strange thing about the rubber molecule is that it can actually stretch itself by absorbing other smaller molecules such as some hydro-carbons without in any way destroying itself physically. I don't believe there is any other material in existence that can do that. It can absorb or take up other molecules, then give them up and return back to its original physical condition. These facts are brought out very thoroughly in tests Mr. Walter Hole made some years ago. American made rubber rings are scientifically compared to the old rubber rings found in joints made 50 or more years ago. A thing of interest here is that the modern rubber rings reacted to cool gas ingredients in approximately the same way that they did with the old rubber, thereby showing there is no real differences in the materials.

Designing the Joint

With some basic ideas of jute and rubber definitely before us it became a mechanical problem simply to make use of that information in designing proper joints for natural or any other gas, so that the swelling action would cause tightness with age, rather than shrinkage. We found by tests and by experience when we used an ordinary follower gland bolted up against a rubber ring that the swelling rubber rings exuded out between the gland and the pipe. Mechanically it is impossible to get a tight fit, even though machining be resorted to, because in the effecting of a tight joint with a gland, it seems necessary in practice to make suitable allowances for the fitting of the metal part; and proper machining is prohibitive in cost. Rubber, strange to say, has almost no compressibility. When subjected to high pressure, it acts like fluid and will move into very small interstices.

These factors are some of the interesting things which we must take into consideration when properly using rubber in the construction of gas joints.

Joints utilizing rubber rings have been most extensively made with lead confining the rubber ring, but we are learning that cement really constitutes one of the best confining mediums for rubber rings. Cement properly driven gives sufficient pressure against the rubber ring, so I think these discoveries will continue to be of great value to gas distributing engineers.

The future of the artificial gas business promises to present the same problems of leakage as now faces the distribution engineer of the Southwest.

A joint that is leaking is usually leaking because of faulty workmanship or perhaps combined with faulty material. Usually a bell and spigot joint constructed of old style material will be found to have either inferior material or inferior workmanship or both. The placing of dry natural gas on the line has caused two things to happen to the old style yarn; one is the moisture is entirely absorbed by the passing of dry gas through the line and shrinkage occurs; the other is that the disintegrated portions may pass into the pipe.

Tests made on old yarn taken out of joints at Natchez, Mississippi, 70 years in use, showed a reduction in volume of approximately five per cent took place when the yarn was subjected to a current of hot, dry air. Some such action clearly takes place when dry gas is turned into the mains. The use of the socalled leak clamp can only be temporary because in placing leak clamps on the joint the best that can be done is to calk the lead back a slight distance and place a rubber ring on the outside of the bell against a very small portion of the cast iron lip on the bell, followed up with the clamp. The rubber thus placed is subject first to hardening from the air, contained in the soil, and second is subject to softening due to the contact of gas from the inside, which simply escapes up over that small one-fourth or one-eighth inch surface where the rubber is temporarily holding. The rubber ring thus exposed inevitably expands itself and will soon leak. I believe the maximum useful life of leak clamps on B. & S. joints cannot be over ten years. If nothing else happens to the rubber ring, the bolts can loosen and destroy the efficiency of the joints.

Removing the Lead

It has been found that it is not a difficult thing to cut lead or cement out of any existing B. & S. joints, place a suitable rubber ring back in the bell and lastly put confining materials, such as lead or cement on top of the rubber ring and in that way construct the joint in place on the existing main at a lower cost than the placing of leak clamps, thereby making a permanent repair. A machine has been designed to quickly remove lead and cement from joints. Such repair work is carried out after the lead or cement is removed by placing a strand of braided jute back in the bell. After the jute is put in place a coil of rubber is used to form a suitable ring. That ring is made by placing the specially formed rubber strip wrapped two or three times around the pipe and followed by a round rubber strip designed to hold the ring thus formed in proper form to be calked firmly in place by lead or cement, etc. When cement is used for caulking the rubber ring, a surprisingly flexible joint is made. Contrary to ordinary cement joints, the cement acts simply as a gland to perfectly confine the rubber. Moreover, I feel that these studies with cement should be considered from the standpoint of economy and electrolysis mitigation.

The old style cement joint has probably caused more trouble by causing breakage of mains than anything else. In order to make an efficient joint with ordinary cement (when rubber is not used) it is necessary to construct a joint that is practically a welded joint, at least that has the same effect as a welded joint. A joint thus made places the stresses of soil movement on the cast iron, but with the use of rubber joints I can say that no trouble to amount to anything will ever occur in the use of cement joints. I do not know of any serious trouble ever occurring where rubber ring joints were used with cement.

Utility of Welded Joint

The utility of the welded joint is confined to lengths 24 to 30 feet. Welding cast iron is used a great deal in repairing breaks, such as cracks in pipe, and it is possible to obtain standard lengths of cast iron pipe 24 to 30 feet long from the foundries and ship it in those lengths to the field, thus affording some economy in the use of pipe. This eliminates some of the cost of construction in the field and makes the work progress more rapidly.

Our researches seem to indicate that joints can be constructed in the field when using the rubber ring, which will grow tighter with age, and which if placed into low pressure service, may at any time in the future be converted into intermediate or high pressure service, and that is the ideal situation, because I think we are all going to live to see the day when house heating with gas is nationwide and that means generally high pressure; low pressure mains may have to be converted to intermediate or high pressure. It is very costly to abandon mains and put in new mains, whereas, with these new ways of constructing mains the pressure can be carried up to any desirable point.

Benzol actually doubles the size of the molecules showing that rubber rings have a capacity of a very considerable amount of expansion in a joint properly constructed. However, I do not believe you will ever attain more than one per cent of expansion of the material in a bell and spigot joint unless the confining materials are put into joints so loosely it will all be dependent upon the ring to take up the extra space.

In one test reported by the committee in 1926, reference was made to a line put in service at Shreveport with rubber rings, and it was found that the action of methane which in that gas amounted to 96 per cent of all ingredients, was very much slower than the other hydro-carbons. Instead of becoming absolutely tight in a few days or a week or two, as is the case with manufactured gas, a period of three to six months, or in some cases a year might be required. The methane molecule is very much smaller one than other hydro-carbons that are found in manufactured gas, and it is clear that more time and more small molecules are required to penetrate the rubber to cause swelling action.

Ingredients Determine Swelling

Mr. Walter Hole shows conclusively that these different ingredients have a different speed of swelling on the rubber, and what I was trying to point out earlier in this discussion is that that speed of swelling depends directly on the size of the hydro-carbon molecule that is involved. Therefore, the methane, which has perhaps the smallest molecule of any of the ingredients would require naturally the longest period of time to cause the swelling action.

Technical and General MISCELLANY for The Busy Gas Man

ASH SEPARATION

The percentage of combustibles in ash from modern retort bench producers is thirty to forty-five per cent, depending on the design and method of operating the producers. Similar proportions of combustibles may be found in the ash from water-gas generators. The question arises as to the economy of the recovery of these fuel values from the ash.

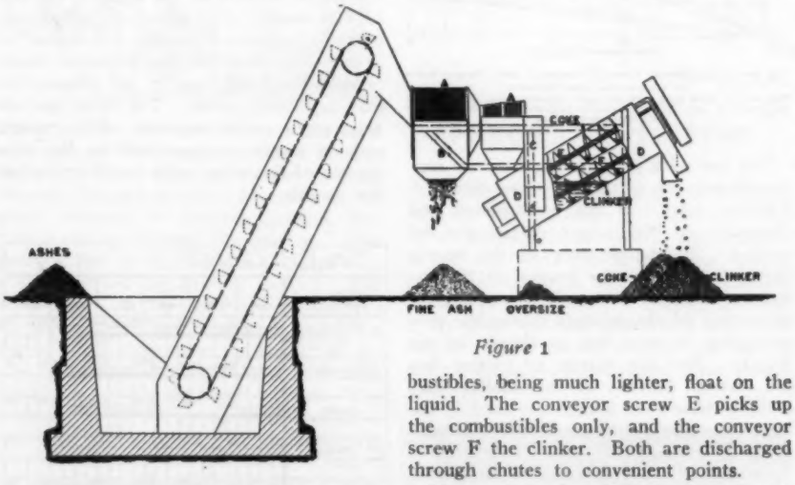


Figure 1

Various types of plant are proposed for this purpose. One such plant, known as the propulsion-flotation type, is described in detail. The operation of this recovery plant depends on the propulsion of the ashes combined with and through a predetermined flow of water for recovery of the fuel content. To obtain the most effective separation it is very necessary that the supply and flow of water should be definitely governed to suit the propulsive motion of the washer trough.

Tests made with the plant indicated that the make-up of the mixture consists of thirty per cent coke, forty-five per cent clinker and twenty-five per cent fine ash. After separation the clinker in the coke was ten per cent and the coke in the clinker was fifteen per cent.

The plant is shown in figure 1. The ashes, except for the very large clinkers, which are picked out before passing to the elevator, are discharged into the rotary screen A, where the fines, which are too small for effective separation, are screened out and passed down the chute B. The remainder, except for the occasional oversize lumps, which are discharged down the chute C, passes forward into the separating chamber D, which contains the liquid required for separation. In this chamber are two superimposed conveyor worm screws E and F revolving in separate U troughs. Immediately the ashes are discharged into the separatory chamber, the clinker being of greater density than the liquid, settles to the bottom, while the combustibles, being much lighter, float on the liquid. The conveyor screw E picks up the combustibles only, and the conveyor screw F the clinker. Both are discharged through chutes to convenient points.

The author also describes an electromagnetic plant. This plant is shown in figure 2. The ashes are discharged through grid A and then elevated into the rotary screen B. This screen grades the material into three sizes, namely, fines, small and large. A very small per cent of oversize passes out through the end of the screen down chute C, either to be hand picked or broken smaller and returned to the grid A. Only the small and large ashes, however, are dealt with on the revolving magnetic cylinders, for the fines, being too small for effective separation, are discharged down chute D. The actual separation takes place while the material is passing over the surface of the cylinders E. The ashes are fed by means of jigger trays on to the cylinders, where the combustibles are thrown off clear, while the clinker with its iron content adheres to the cylinders for approximately half a revolution, until, leaving the influence of the magnetic field, it drops away on a different direction from that taken by the combustibles. F. P. Fall, **The Gas World**, June 9, 1928, pages 583 to 586.

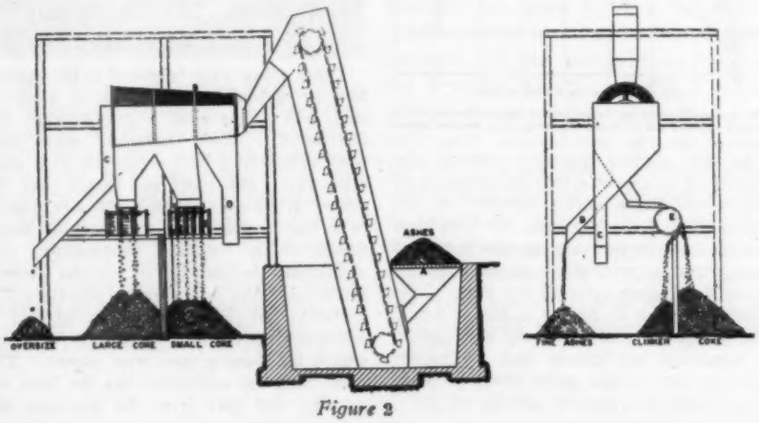


Figure 2

PURIFYING GASES BY THE WET PROCESS

Fuel and other gases are freed from sulphuretted hydrogen and other acidic impurities by washing in an alkaline liquid containing a compound of arsenic or metal of the tin group of qualitative analysis, a prepared mixture of alkali and metal compounds preferably in solution being added to maintain the strength of the wash liquid. In making up the initial solution equal parts by weight of sodium carbonate and arsenious oxide are mixed and brought into solution by heating, carbon dioxide being eliminated by boiling. The solution is caused to absorb sulphuretted hydrogen and is then aerated to form a thioarsenate.

Additions of mixtures of carbonate and oxide are made at as low and uniform a rate as is consistent with maintaining the strength of the solution and are preferably made by allowing a solution to flow slowly into the system at the inlet to the absorber. Alkali is also preferably added in this way except when discoloration of the foam or solution indicating a deficiency necessitates a batch addition. Sodium hydroxide or sulphide may be used as the alkali and other arsenic compounds such as arsenious sulphide may similarly be employed. Potassium and ammonium may also be used as the base and tin, antimony or other metal

of the tin group of qualitative analysis substituted for arsenic. The initial mixture contains two atoms of alkali metal to one of arsenic, subsequent mixtures for addition to the system altering the ratio of one to one. H. A. Gollmar, assignor, Koppers Co., Pittsburgh, Pa. British Patent No. 286,633.

FUNDAMENTAL PRINCIPLES IN THE DESIGN OF GAS BURNING EQUIPMENT

The design of the burner and of the proportioning device is discussed. When gas is used to entrain air required for combustion, the combustible mixture supplied must be under sufficient pressure at the burner nozzles to have a higher velocity than the rate of flame propagation. Should the velocity be less than the rate of propagation, a flashback occurs, igniting all of the mixture stored in the manifold piping between the inspirator or mixer and the burner. The minimum velocity allowable, therefore, will vary for different gases because of their different rates of flame propagation. Thus, with coke oven gas high in hydrogen content, we find from experience that pressures much below half an inch of water pressure through the burner nozzle are apt to permit flashback, for the velocity of flame propagation of such a mixture is thirty feet per second. On the other hand with natural gas we have a rate of flame propagation of fourteen feet per second which permits mixture pressures as low as 0.2 inch of water.

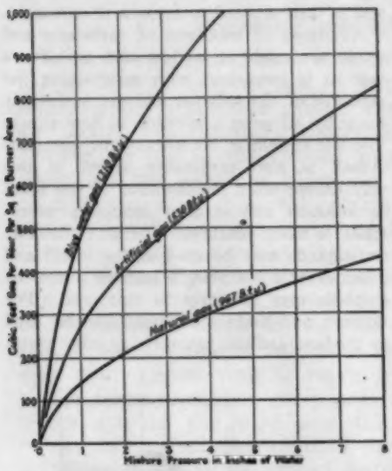


Fig. 1—Gas Discharge per Square Inch of Burner Nozzle Area for Various Types of Gas at Various Pressures of the Air-Gas Mixture

As the mixture pressure controls the velocity, it is apparent that the quantity of gas which flows varies directly as the square root of the pressure. It is evident that the mixture pressure must be increased more than in proportion to capacity increase for higher rates of gas flow. This relation is seen in figures 1 and 2, which give a clear idea of what may be expected in capacities per square inch of burner area for the various gases when properly mixed with the required amount of air.

Details are given on the design of the inspirator proper. The gas nozzle spud is usually constructed of brass. It consists of a conical inlet terminating in a channel orifice of definite area. The coefficient of discharge of such a spud should be 98 per cent. The venturi consists of an inlet with a flared entrance, a throat of definite diameter and an outlet or pressure cone for reconverting the velocity into pressure. The more efficient a venturi is, the higher usually the ratio of throat is to burner nozzle area.

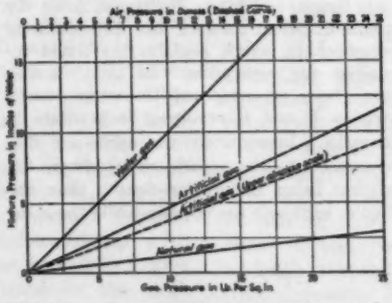


Fig. 2—Air-Gas Mixture Pressures Attainable with Various Gases at Various Gas Line Pressures
The broken curve used with the upper abscissa scale, refers to gas inspirated by air. The solid curves represent the reverse case of air inspirated by gas

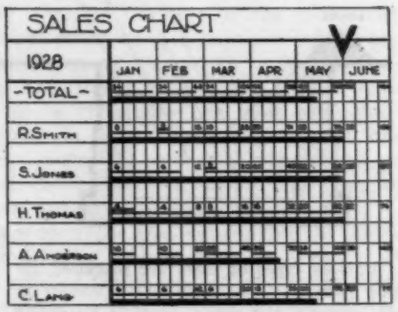
The use of a pressure regulator to control the pressure of the gas is also indicated. Various details in the construction and placement of the burner proper are described. The temperature of the burner should be low, for the heating of the unburnt mixture promotes flashback and the preheating of the mixture causes the proportioning to vary due to change in gas density. For this reason air-cooling fins are cast on burners of the smaller sizes while water-cooled nozzles are used in the larger installations to accomplish this purpose. The design of special burners is also discussed, such as for example those used in baking, roasting and similar operations, where it is desirable to have a minimum of sensible heat in the flue gases. N. T. Branche, Chemical and Metallurgical Engineering, June, 1928, pages 357 to 360.

REACTIVITY OF COKE AND A NEW METHOD OF DETERMINING IT

Three cokes were prepared in the laboratory by carbonizing an anthracite, a coking coal, and a gas coal, respectively at 950 degrees C. Their "relative" reactivities were determined by passing air at a constant rate (five liters per hour) over 0.2 gram of the coke, of uniform size, placed in a boat in the tube of a furnace maintained at a constant temperature, and measuring the amount of carbon dioxide produced. This was done by observing the variation in electrical conductivity of a solution of barium hydroxide through which the issuing gas was passed. The coke from the anthracite has the least reactivity, and that from the gas coal the greatest. The distinction between "reactivity" and "combustibility" is emphasized. R. A. Dengg, Polytechn. Weekblad, volume 20, pages 245ff.

GRAPHIC CHECK ON SALES QUOTAS

The accompanying figure shows a chart which can be used to good advantage in checking sales against quotas. Such a chart would be of special value in a gas appliance sales campaign as well as in the ordinary run of business in the merchandising department. The chart indicates the record of five salesmen. The large columns form the months of the year and may be divided for convenience into smaller subdivisions. The quota number is written on the line opposite the name. Along the same line but to the right of the month space, a number is written representing the cumulative total from the beginning of the period covered by the chart to the end of that month. The actual net sales made by the salesman each month is indicated by a light line drawn in the horizontal space opposite his name, and in the column for that particular month. The light line always starts at the beginning of the month and its length is determined by the proportion of the actual sales to the quota for that month.



If, for example, the quota is eight, and but six were sold in that month, the light line will be six-eighths or three-quarters the width of the space. Should the sales in any one month exceed the quota, as in the case of S. Jones in March another light line is drawn starting again at the beginning of the month and placed directly over the existing one. S. Jones sold ten in March whereas his quota was eight. The light line would then be ten-eighths which is equal to one and one-quarter times the width of the space.

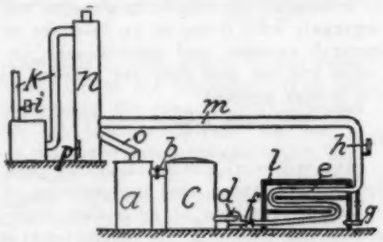
The heavy line under the light ones represent the cumulative sales and its length is equal to the proportion of the total cumulative sales to the corresponding quota at any given time. The large V on the chart merely indicates the date under which the chart was copied.

The chart thus shows for each salesman, first the quota for each month, second the cumulative quota to date, third the actual monthly sales, fourth total sales to date.

It also shows the following totals: first sales quota for each month, second cumulative sales quota to date, third actual sales for each month and fourth cumulative sales to date. Executives Service Bulletin, May, 1928.

COAL GAS AND WATER GAS COMBINED INSTALLATION

In the accompanying illustration, a is a simple water gas generator, which is maintained in intermittent operation. The gas which is produced in this generator is led through the pipe b into the holder c. The size of this holder is such that it can store the gas production from a short period of time. The gas exhauster g then removes the gas through a pipe e and the



valve f. The pipe e is made in the form of a coil which is located within a furnace setting. Thus the gas while passing through this pipe is heated by means of the gases obtained in burning gaseous fuel which enters through the inlet g. This gaseous fuel is drawn from the pipe e at a point beyond the heating furnace. The temperature of the hot gases is measured by means of the thermometer h, and i is a device which determines the quality of the gas that flows out of the system through the pipe k into the distribution mains. The temperature of the gas in the preheater is adjusted in accordance with the quality of the finished gas. The gas, which is heated in this manner, flows through the pipe m and eventually enters the carbonizing retort n. The retort is equipped with an outlet pipe o in order to remove the partially carbonized fuel, that is coke, from the retort into the generator where it can be converted into water gas. The partially carbonized fuel, which is not required for manufacture into water gas, may be removed from the coal gas retort through the door p in the form of semi-coke. Otto Misch, Frankfurt am Main, Germany. German Patent No. 456,743.

PURIFIER COVER LIFTING LUGS

The cover of a dry purifier box is practically a plain flat surface, and in this repect it differs very materially from the old form of water-luted purifier cover, where the depth of side sheeting, stiffened with a bottom curb of angle or tee iron, effectively prevented any undue deflection of the cover when raised, moved or lowered. When designing steel covers for dry-luted purifiers, it is desirable to place the lifting lugs in such positions that the resulting deflection when the cover is lifted is reduced to a minimum. This not only gives additional strength to the cover by reducing the bending moment, but guards against the possibility of the rubber jointing being overstrained. If the lifting lugs AA (see figure 1) are placed too close together, it is obvious that when the cover is lifted deflection will take place in such a manner that the center of the cover rises while the cantilever ends fall. If the lugs are placed too far apart, then the elastic line assumed by the cover when lifted may be represented diagrammatically as in figure 2.

The author develops formulae for the determination of the most favorable position of the lifting lugs. The derivation of these equations and their use are described in the original article. S. M. Milbourne, Gas Journal (London), May, 30, 1928, pages 600 to 601.

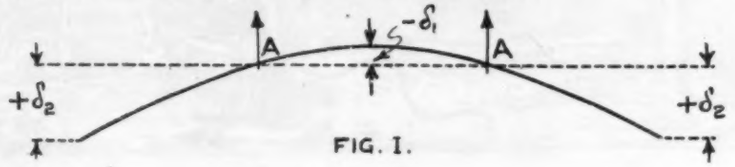
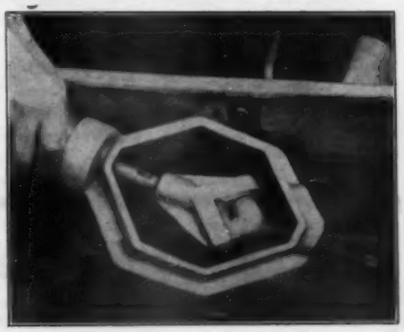


FIG. I.

FIG. II

PNEUMATIC TESTING APPARATUS

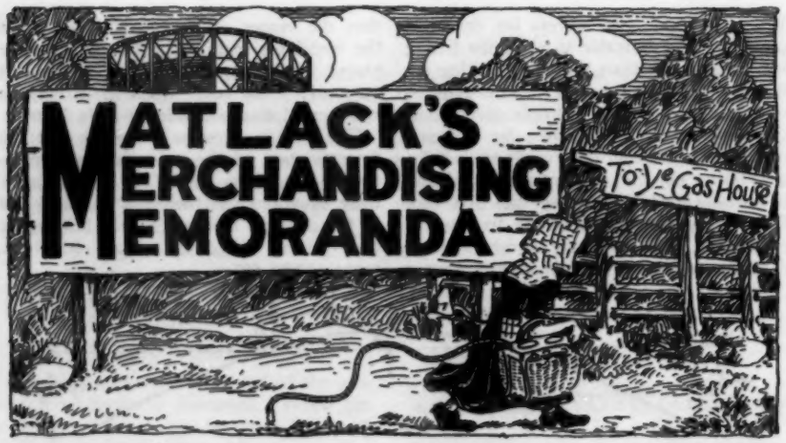
The illustration shows a device for testing pipe fittings, tubes, valves, cocks, etc., by air pressure under water. The principle is not new and is used daily for finding punctures in motor tires. The distinctive feature of the apparatus shown, however, is the speed and ease with which such tests can be carried out on articles that require testing as part and parcel of their manufacture.



Thus a three-quarters-inch T type fitting can be loaded into the jig, the three ends closed up, the fitting charged with compressed air and then immersed in water to see if there is a leak. The air is then turned off and the fitting unloaded, all this being done within a space of five seconds and by juvenile labor. This matter is important to the gas company for gas companies are today adopting only individually air-tested malleable iron, wrought iron and brass fittings. Gas, April 25, 1928, page 325.

K. S. G. LOW TEMPERATURE PROCESS

The low temperature carbonization plant in operation near Essen is described. The retort comprises two concentric mild steel drums, the outer 72 feet long and 9 feet 9 inches in diameter, the inner 84 feet long and 5 feet 7 inches in diameter, which are inclined at a slight angle to the horizontal and are supported on rollers. In operation they are rotated at ¾R.P.M. Fine coal is fed continuously into the lower end of the inner drum and is carried by helical flanges to the upper end. It passes then into the annular space between the drums and, under the combined effect of gravity and the rotation, returns to the lower end and is discharged as coke. Carbonization is effected by a combination of external and internal heating. The retorts are enclosed in heating chambers through which circulate hot gases from a combustion chamber below, and superheated steam is admitted into the annular space between the drums in such a way that it passes through the mass of the coal. The gases and vapors evolved pass through a dust catcher to a condensing system. After separation of the fines, which may amount to twenty per cent and are utilized for blending purposes, the lump coke forms a suitable domestic fuel. It contains ten to twelve per cent of volatile matter. J. N. Hazeldon, Fuel, 1928, volume 7, pages 155-160.



A FOLDER WITH AN IDEA

Speaking of good will advertising, it seems to us that the Bell Telephone Company's efforts along this line are just about par excellence. The Bell Company advertisements get right down to earth and carry a vital, every-day message to us every-day folks. They are presented in a manner that we cannot fail to understand. They solve the telephone problems that we all have, and they do it in such a way as to cause us to feel a bit mean because we took it out on an operator.

"Did It Ever Happen To You?" is the title of one of their folders, and if you have received this folder along with your service account did you not say: "Well, I never thought of that." Gas companies may get an idea of value to them from this folder.

HOW ABOUT IT?

The other day, in company with another gas man, this writer visited the Commercial Manager of one of the metropolitan gas companies, and the subject of merchandising was brought out into the open, and became the chief topic of the day.

Said gas man Number One, to the M. C. M.: "You have a wonderful store here and your merchandise is all A-No. 1; your displays are very attractive, and I judge your job is doubtless a pleasant one, very different from some fellows I know."

The M. C. M. replied, "thanks," heaved a big sigh, and continued: "You know I never could understand why the management of so many gas companies honestly believe that gas merchandising is different from any other sort of merchandising."

This ended his talk, but it again brought up the old question, "Why do so many gas men try to make themselves believe that the selling of gas appliances is so different from selling clocks, cold creams, candies, cigars, yard goods, suits, hats, millinery, drinking clothes and dry cleaning that must be done differently?" That is what gas man Number Two wanted to know.

He continued: "Why is it; Blank there is a keen observer, a man who has traveled and seen how other men merchandise; he is a man who knows his stuff, and yet I would opine he is being somewhat held down by an old fogey idea. As I see it, he has sensed the thing many 'used-to-be' gas men have found out, that engineers, figger-jigglers and sundry others are actually doing the policy making and he is just marking time until some department store discovers him."

How about it?

OYEZ! OYEZ!

In speaking of dealer cooperation a man who usually is about two jumps ahead of the other fellow, said: "If we are to secure dealer cooperation to any worth-while degree we will have to devise a code of practice that will encourage the dealer to exploit gas appliances in a bigger way.

"We will only advertise and sell such appliances which we, as an industry, can honestly recommend as regards safety and satisfactory service.

"We will sell on a margin that will enable us to earn a fair return on our investment.

"We will refrain from advertising comparative prices and use only true values of appliances advertised.

"We will advertise what the appliance will do for the customer rather than advertise its low price.

"We will take a definite stand on the matter of premiums, probably doing away with them entirely.

"We will establish a definite policy in regard to time payment sales and terms and carrying charges.

"We will charge to merchandising only such items of expense as legitimately belong to merchandising expense and segregate such items as go to make up general expense and promotional expense and see that they are charged to the proper account.

"We will cease selling socalled related items.

"We will work out an allowance plan, for old appliances, that is conducive to constructive selling of up-to-date appliances and which at the same time is acceptable to the dealer."

A HOME SERVICE WRINKLE

Here's a little home service advertisement that many interest you gas men. It is being used by the Illinois Power and Light Corporation to promote oven canning and new uses for the gas refrigerator. The company has planned to have its two home service workers conduct these demonstrations each Thursday throughout the summer.

The big idea back of these demonstrations is to get folks to visit the show room where they will not only be instructed in oven canning, but where they will have an opportunity to see the whole line of appliances sold by the company.

You are Invited

To bring your home management problems to us—Visit our office Thursday, let our Home Service Department demonstrate how easy it is to can fruit in the oven of a carefree gas range, how easy it is to have frozen desserts when you possess a SILENT GAS Refrigerator.

Illinois Power and Light Corporation

Phone East 1041

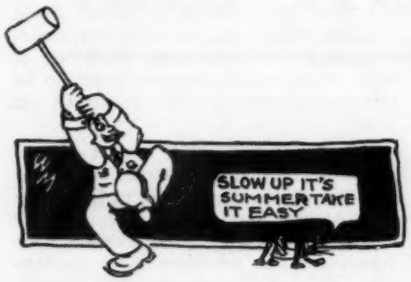
417 MISSOURI AVE.

SPECIAL DEMONSTRATIONS EACH THURSDAY!

DOG DAYS DATA

There may be unemployment, but it is not so bad as it is painted. Checking up here and there, it seems that folks are not buying as much as heretofore—they arae being sold more.

It seems to me that if gas men will just give the old summer slump a swift kick at the door step they will be rid of the old bogey forevermore.



August is a good month to sell folks. Women detest hot kitchens. Why not sell them on the idea of more freedom from the kitchen through the use of oven heat regulated ranges—oven heat regulation has only been half sold. Summer calls for an abundance of hot water; why not have a "joy" campaign. We learn from Rudiments that gas companies in most every State in the Union profited by such a campaign last year and the year before.

Why not get your salesmen into the idea of making just as many calls per day during the summer as they do during the other seasons of the year. If they have to go to the game, why not go on the holidays. Show them that the time to make sales is while the other fellow is taking it easy.

If you get your sledge out and swat that old summer bug you will find that everyone does not take a vacation at the same time. Also, you will find a great many people who do not go at all, even if they do have two weeks off with pay.

Gas refrigeration is another idea that you can sell during the summer, and you do not have to stop there. You will find plenty of people who will talk about the problem of heating their homes next winter. We know a man in Baltimore who claims to develop sixty-five per cent of the prospects sold during the humid sultry days of mid-summer. He exposes himself to the prospects in summer and sells these prospects about the time of the first frost.

A BEE FOR YOUR BONNET

August is rather a lazy month, yet merchandising gas men will do well to shoot hard and often on gas for home heating during this month. Folks are on their vacations or returning from them and are thinking again that "it will be a long, hard winter." There will be coal to store and heave into a yawning furnace, ashes to carry out, and dirt and grime everywhere. Then, too, with the coming of the "skeeter," August is a good month to exploit the incinerator for home and commercial use.

A window display showing how this appliance will save the home manager and keep the basement and back yard looking spic and span will certainly stimulate its sale.

Try it.

RECOVERED RANGES

The R. and A. (recover from customer for non-payment and allow credit for balance due) gas range has found its place in the sun at last, and the gas man has found a ready sale for it by simply substituting the word "rebuilt" for the word "used" in offering it for sale to the prospective customer.

The Illinois Power and Light Corporation, East St. Louis, has so successfully used this plan that it is a very rare thing that they have as many as three rebuilt ranges in stock at any one time. The same is virtually true of the Laclede Gas Company, St. Louis, who are also using the plan.

In both instances, as stoves are recovered, they are sent to the shop where they are carefully inspected and note is made of their condition, after which they are carefully cleaned, painted or polished and all defective or broken parts are replaced. When this is accomplished the ranges are then priced with special tags and they are offered for sale. Where rebuilt ranges have oven heat regulators of standard make, they are priced to include an allowance on the customer's old stove. All rebuilt ranges carry the company's usual guarantee.

SMALL ITEMS

Here and there we hear gas men asking: "Have you heard of any new small appliances that we may add to our line?" This desire has been developed by reason that a number of "the Big Bugs" have demanded volume—at any price.

Still, any movement if rightly understood works to someone's advantage.

If the gas man had a dozen new gas consuming appliances it would be helpful, not alone in bringing up merchandise sales, but in building up and making profitable the vast number of non-profitable customers that all companies now have.

SOME CONTEST!

What do you think of a pie and cake contest that secured six hundred and fifty entries? Such a contest was recently held in Ft. Worth, Texas. The photograph of the pies and cakes entered looks like a feed staged for a National Convention, but in reality it illustrates what a good idea is worth. Fresh air baking takes the cake, or, maybe, it was a fresh air baked pie that took the prize.

WHAT'S THE MATTER WITH THIS PICTURE?

The cartoon reproduced herewith is from the description given by a man of the effect his "pep" letters has on salesmen. This man was a successful

corn salve orator, so successful in fact that he decided to "can" his talks and syndicate them.

They (his letters) are full of ginger and the boys who got them are just rarin' to go as soon as they read 'em.

That's why we ask, "What's the matter with this picture?"

AN OLD IDEA REVAMPED

Here is an old idea revamped and set in a modern setting, and it seems to us that this is a good summer sales stunt, playing up the $10 allowance for the old stove and the low down payment.

We know of a dozen 99c. sales that have produced in a big way. The coupon in the advertisement reproduced here is a good idea, in fact the whole advertisement is so built that it will cause folks to buy.

Let's trade!
Trade-in Sale of
New ROPER
GAS RANGES
99c down
—a year to pay
Get $10.00 for your old stove
Buy a new, up-to-the-minute Roper Gas Range now—let us take your old stove off your hands.
Our low prices, liberal trade-in allowance, small down payment and convenient terms are your opportunity.
Don't let others get ahead of you. Come early—while our stock of Ropers is complete.
No More Baking Failures
Your new Roper with Complete Oven Control will make your cooking, roasting, baking easier—bring you better results—save you time, steps, food expense—insure quicker preparation of meals—give you more time for rest and recreation.
A Few of Roper's Many Famous Features
Roper Complete Oven Control—cooks a whole meal while you're away.
Roper Ventilated Oven—bakes in heated fresh air. Reduces food shrinkage.
Roper Porcelain Enamel Oven Linings—Rust-proof, easy to clean.
Roper Touch-a-button Top Lighter—eliminates matches.
Roper Lifetime Cooking Chart—assures perfect baking results.
Save $10.00
Trade in Your Old Stove Now!
Roper Standard Gas Ranges are tested and approved by Good Housekeeping Institute and carry the Blue Star Seal of Approval of the American Gas Association Testing Laboratory.
Roper Color Gas Ranges: This sale includes the new Roper Color Ranges—finished in Peadro Blue, Jade Green, Canary Yellow, Imperial Red.
Time means money—act today!
Clip This! TRADE-IN TICKET
This ticket entitles bearer to liberal allowance on old stove if presented at time of purchase of new Roper Gas Range.
Name of Purchaser
Address
GOOD ONLY DURING THIS SALE
MERCHANT'S NAME
BE SURE THE ROPER PURPLE LINE AND THE ROPER COMPLETE OVEN CONTROL ARE ON THE GAS RANGE YOU BUY

TELLING THE WORLD

Hitting the highway between Belleville and East St. Louis, Ill., one's attention is drawn to an illuminated bulletin board that is unusual for it features GAS refrigeration. The bulletin is one of the first ones in the Middle West, and as the advertisement is an outstanding one, we feel that it is worth reproducing.

The photograph hardly does the bulletin justice, as it does not bring out the beautiful colors of the contents of the refrigerator, to say nothing of the "mountain tops" and the blue sky background.

There is also another bulletin that the Illinois Power and Light Corporation have erected in the downtown district of East St. Louis. The downtown board, by the way, is just as artistic as the one shown here. It contains the refrigerator with the ice cubes pouring out of it in about the same fashion, except the box occupies the right-hand corner of the board, while to the left of the board is a huge gas flame.

TO ALL SALESMEN

I have been making a careful study of sales effort and merchandise exposure, trying to learn just which one of these sales factors cause an order to be written for one appliance instead of two.

My observations have been made on the floor of our display room, and I find that the usual sale is made in this manner: A "live one" enters our office to buy a gas range, by appointment or otherwise; the salesman after displaying the ranges and explaining their merits secures a decision from the customer, produces his order book, writes up the order, secures the payment, gives the customer a receipt and thanks him. That is fine, so far as it goes, but why not take another ounce of effort, a few moments of time, and lead the customer over to some other item we have "exposed"?

Suppose you sell the customer a gas range, is there any reason why you should not sell him an incinerator, laundry dryer, water heater, space heater, box of Knox Tarnish, or even a toaster?

You have the customer in a buying mood, you have the merchandise exposed, you are master of the situation and if you don't take advantage of this opportunity to sell you will find by a little "figgerin'" that you are cutting your commission down several hundred dollars a year.

Suppose you wait upon and sell ten customers each month, or 120 a year, and that you sell 50 per cent of them an appliance that adds only $2 to your commissions. This gives you ten additional iron men each month. Try it!

Yours for the extra E,

SALES MANAGER.

ENGINEERS *and* BUILDERS GAS HOLDERS *and* TANKS

This Ten Million Cubic Foot Natural Gas Holder, shown here, which we erected at Long Beach, California, recently, has won for us the highest commendation.

In the completion of this holder a new record was attained—even surpassing the splendid record we made on a holder of the same capacity which we erected at Buffalo, New York.

Five and one-half months after beginning work on this Ten Million cubic foot holder, gas was turned on.

A remarkable achievement in rapidity of construction, due to specialized workmanship and methods employed.

The "STACEY BULLET" for high pressure storage, embodies all the elements of sound engineering design, attractive appearance and low cost.

"ABILITY TO SERVE"

The STACEY BROTHERS Gas Construction Co.

CINCINNATI, OHIO

JAMES E. STACEY, Pres. ANDREW J. STACEY, Vice-Pres. WAYNE STACEY, Gen. Sales Mgr.
ARTHUR A. POPE, Sec. and Treas. WILLIAM A. MILLER, Chief Eng. P. C. RODGERS, Asst. Sales Mgr.

NEW YORK OFFICE—75 West Street—P. F. McEnaney, Mgr. Tel. Bowling Green 8186

New England Representative—Eastern Service Co., Boston.

Retire the Shovel—

But use

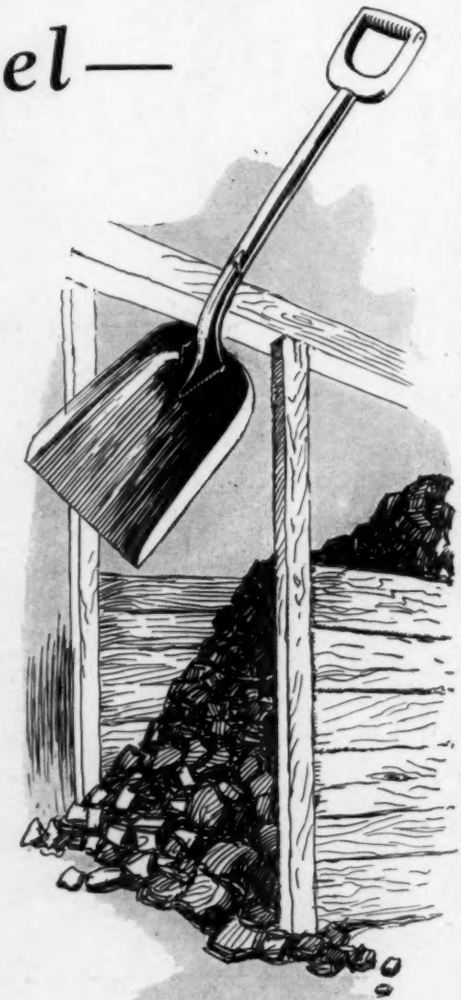
The Boiler

or

Furnace!

BARBER Patented JET GAS BURNERS

Will retire thousands of coal shovels and ash cans the next few months. The good old coal-burning boiler or furnace will remain—but will be modernized and brought up-to-date—converted into a clean, automatic, efficient, and economical gas heater with Barber CONVERSION Burners.



There's a rich harvest waiting for wide awake Gas Companies that will go right out after this most profitable business. Start now—don't delay! Get our Demonstrating Outfit, Display Signs, Circulars, Broadsides, Consumer's Letters, etc., and begin your Sales Campaign at once. Write us today.

Illustrating the No. 3-R-17 Barber Burner properly positioned in a round boiler. The same idea is carried out in a round warm air furnace; that is, by placing the burner low in the fire-box, the longest possible heat travel is obtained. Barber CONVERSION Burners are furnished in sizes and capacities for every house heating need.

COMPANY MEMBER OF AMERICAN GAS ASSOCIATION

The CLEVELAND GAS BURNER & APPLIANCE CO.

Burner Specialists

3702-04 Superior Avenue, Cleveland, Ohio

PIPE ENGINEERING *for* MODERN OIL *and* GAS TRANSPORTATION

Essentially, SMITHWelding is an engineering process that interests the Oil and Gas Industry because it produces, on a mass production basis, pipe that satisfies all the new and complex demands of modern underground oil and gas transportation.

Engineering Its Manufacture

The manufacture of Smithsteel Gas Line Pipe is under the direct supervision and control of the Smith engineering organization that developed and perfected the process of SMITH-Welding and its application to the manufacture of Smith Cracking Stills, Couplings and Pipe.

A. O. SMITH CORPORATION
General Offices—Milwaukee, Wisconsin
Oil & Gas Field Products Division
District Offices at New York, Pittsburgh, Tulsa, Houston, Los Angeles

SMITHSTEEL
GAS LINE PIPE

"Printing—the preservative of all arts"—JOSEPH AMES

American Stove Company receives from gas company executives, publishers, women demonstrators, college professors and teachers of advertising many letters commending the interesting editorial content and substantial appearance of Magic Chef*. Many letters also come from retailers and their salesmen relating how its contents help them to sell stoves.

***Magic Chef is the Dealer Magazine published monthly by American Stove Company. It was established in 1920 and has a circulation of approximately 15,000 copies per issue.**

AMERICAN STOVE COMPANY
801 Chouteau Avenue .. .. St. Louis, Mo.
LARGEST MAKERS OF GAS RANGES IN THE WORLD

These are the Six Famous Brands of Red Wheel Gas Ranges:
DANGLER · CLARK JEWEL · QUICK MEAL · DIRECT ACTION · NEW PROCESS · RELIABLE

LORAIN RED WHEEL

Colored Ranges and the Cooking Load

By Nina Wilson Badenoch

Home Service Department, The Peoples Gas Light and Coke Company, Chicago

HOW long would your wife cook in the gloomy kitchen of twenty years ago? Can you picture her in the midst of a big square kitchen with the walls painted chocolate brown at the base, growing lighter at the top till the ceiling looked like the clay-laden Missouri River in flood time; with wood-work stained dark? Can you see her cooking over the old black range in the corner, or scrubbing the dark wood floor?

Of course you can't.

No wonder women started a revolt which led them out of the kitchen and to the restaurant. Yet, Mr. Man liked his wife's cooking better than anything he could buy. So he flattered her by telling her and everyone who would listen to him what a good cook she was. But it didn't work. Not in that cheerless, inconvenient room.

The Metamorphosis

Then he tried another tack. He had the walls and woodwork painted white, encouraged the manufacturers to make a stove with white enamel, bought a white sink, put blue and white linoleum on the floor and home cooking looked up. His wife showed everyone her kitchen and took such pride in its spotless whiteness that she spent extra hours washing and polishing its surfaces.

But something was happening in the front of his house which gradually drew his wife away from the kitchen. The sun parlor was added, and with the brightness of its many windows, seemed to demand gay colors in cushions, chairs and hangings. All the family liked to sit in this room better than the drab colored living room. In fact, his wife found it such a pleasant place to play bridge with her friends in the afternoon that her kitchen seemed colorless and cold by contrast, and she fell into the habit of getting prepared food at the delicatessen or bakery, or reheating canned goods. The brightness and color of the sun porch satisfied her inherent desires.

She lived with color, the whole family lived with color, and gradually the white lace curtains in the living room were deepened to cream, and rose and blue and mauve appeared as side drapes. The old chairs donned gay dresses of chintz and new chairs and cushions didn't leave the furniture store unless they had color. Everyone liked the brightness and beauty of the change. But still the kitchen remained as white and cheerless as an operating room in a hospital.

Gradually the craze for color went through the house. The bedroom curtains and spreads flushed with color, the china and glass and linen in the dining room took on color tones. It penetrated the garage. When Mr. Man took his wife to the automobile show she picked out the car with the most attractive colored body and upholstery and cared not at all what was under the hood, just so it would run.

One day the man of the house found his kitchen knives and forks brave with color in the handles, the walls tinted with color and the woodwork trimmed with it. The kitchen cabinet had gay designs on all its panels, and the pots and pans bloomed like a flower bed. His wife was singing as she worked, and there was the delicious fragrance of home-made apple pie about the oven.

Color had come to stay. It had filtered back from the sun parlor, to the living room, brushed the bedrooms in passing, touched everything in the dining room, and landed in the kitchen. And the home cooking load picked up.

The Good News Spreads

His wife began to talk about color schemes and he heard her tell her friends that she was working out a color scheme for her kitchen which would make it just as gay and cheerful as the sun porch, in fact she thought it would be the most attractive room in the house.

She began to study the arrangement of her kitchen with an eye to having it as comfortable to work in as the living room was to entertain or live in. She made the architect take off a few feet from the sides of the kitchen and leave it rectangular in shape so that her sink, cabinet and stove were conveniently near together. She counted her steps and her motions. Useless ones didn't add comfort. She had lots of foods she wanted to cook. She could use her time and motions there.

More than that, she had good, old-fashioned baked dinners she wanted to cook, yet she objected to the long period of oven watching. The Gas Man got busy and said he would do it for her by putting a regulator on the oven, which would keep the heat just where she wanted it.

He offered it to her in stoves of white and gray. She liked the regulator and began making her own pies and cakes, delighting the family. She talked so much about how easy it was to bake that the man of the house decided he would take a turn and make some pop-overs for Sunday breakfast. Sister began baking cakes, and brother satisfied his insatiable desire for hot biscuit by baking his own. Everyone could bake and cooking became a family affair.

The Gas Man Cooperates

Then the Gas Man heard her talking color schemes, and knowing that the gas range occupies the most important place in the kitchen, he offered her new ranges in a variety of colors, as the keynote about which she would build all other details.

He created dissatisfaction with the old range by displaying ranges of delicate refreshing green, trimmed with ivory or light gray. He made the gas range appear so much more attractive than it ever had before that it assumed new importance. It was not only useful but decorative as well. It was as much to be desired as a new model automobile or a modish fur trimmed coat.

For the woman whose pocketbook did not force her to be conservatiave he developed a range trimmed with the popular Chinese red shading to white. He knew that her imagination would kindle to the possibilities of using it with black and white, developing a smart kitchen which would be the talk of all of her friends.

For the kitchen with north light he designed a range in shades of yellow, knowing the effect of its cheer. He thought of every color which would harmonize in the kitchen, making it as beautiful as the rest of the home. He made the new 1928 range mark the

colorless ranges as old fashioned and out of date. He started the leaven of fashion in ranges, which means the selling of more gas ranges.

She looked at his display and saw one which was just the spot of color to make her kitchen perfect. He tantalized her with attractive offers to take the old one in trade, allow her monthly payments, give her a discount for cash, in fact, he made it so easy for her to realize the dream of her color scheme in the kitchen that she could not resist buying the new range.

But his psychology was even deeper than the sale of ranges. It went back to the gas main. He knew the stimulating effect of color in making the gas range attractive to use. He believed that a woman would spend more time in her kitchen if the kitchen was the pride of her home. He believed that she would find new pleasure in cooking on a range in harmony with her color scheme so that every time she turned on the gas she would have a thrill of pleasure in the beauty of her stove. Finding new pleasure in her cooking she would do more of it. He believed that the colored range would increase the cooking load.

To test the truth of his reasoning, ask your wife if she would bake your favorite cake more often if you buy her a new colored range. You will find she will readily agree, and so will the wives of thousands of your customers. It is this kind of inspiration which is needed to keep her happy and interested in her kitchen and build up the load which is so important that it constitutes almost three-fourths of the entire business.

Supplanting Artificial Gas With Natural Gas

J. B. Dillon

TO clear its mains of artificial gas so as to emit the natural gas from Texas, the Public Service Company of Colorado tapped the mains at various sections and ignited the artificial gas. The long flames shooting from the ground caused much curiosity, the night view quite thrilling.

With the coming of July most of the city of Denver is using the new gas, and while, of course, the service is far from standardized, the gas is doing its work. It will require some time to get things in place and shape, but at no time was the gas off, therefore the engineers are entitled to much credit for their work.

Several hundred men were employed by the company in visiting the customers, making changes to accommodate the natural gas. Even while they were on the ground or before their coming the company used the newspapers, explaining the changes necessary. One of its advertisements follows:

. . . so little but so BIG! because
Use of natural gas requires a special orifice. Illustrated above. The orifice is in the gas appliance what the carburetor is in the automobile. It regulates the flow of natural gas into the burner to give the proper flame and heat. Each type and kind of appliance requires a different size of orifice. Illustrated are types of the orifice—the gas appliance carburetion—which must be installed in all Denver gas appliances for the use of natural gas. The size of the orifice is shown in comparison to an ordinary kitchen match, both actually about one-half the size pictured.
so many to install
Introduction of natural gas in Denver will necessitate the adjustment of between 350,000 and 400,000 gas appliances, including ranges, water heaters, furnaces now using manufactured gas, bake ovens, incinerators, etc. More than 1,500,000 new orifices must be installed to complete the adjustment of all Denver appliances for natural gas.
Please—
do not use your gas water heater, gas room or fireplace heater, or the oven on your gas range until after our expert service man has called and made proper adjustments.
One for Every Burner in Every Gas Appliance in Denver
Every gas burner on every single appliance requires a special orifice for natural gas. These will be installed as speedily as is humanly possible and with the least inconvenience to customers consistent with uniformly good service
Natural GAS
the ideal fuel
Public Service Company of Colorado

Inventor of Gas Refrigeration Visits United States

Baltzar von Platen, prominent Swedish engineer, who with Carl Munters invented the Electrolux refrigerating system that freezes by means of gas flame, arrived in the United States recently for a two months' visit, during which he intends observing American methods. In an interview, von Platen told the romantic story behind the invention.

It was while they were students at the Royal Institute of Technology at Stockholm that the inventors conceived the idea of an absorption refrigerating system which would be self-sufficient, noiseless, have no moving parts, and operate by applying gas heat to a unit containing two chemicals. Water was used as a cooling agent. Inspiration for the idea came while the two friends were talking in von Platen's lodging one night.

In less than a year after speculating on the possibilities for such a device, the refrigerator was ready and working. Its infinite possibilities attracted the interest of A. B. Elektrolux, powerful Swedish syndicate, which obtained patent rights. Two years ago the American rights were acquired by the Servel Corporation, refrigerator makers, Evansville, Ind. Several engineers were called into consultation and in a relatively short time adapted the refrigerator to American standards, making it possible to market it nationally.

Window Display That Does Not High Pressure the Prospect

By Ray Martin

Chairman Window and Store Display Committee, American Gas Association

WHAT should we expect of Window Display Advertising?

Perhaps the reason why this question usually comes up when conversation turns to this advertising medium, is because it is so often answered by generalizations, evasions or rash promises.

Disregarding numberless statements to the contrary, Window Display Advertising rarely, in the final analysis, actually sells gas appliances. Advertising executives do not expect it to. Rather, its primary function is TO CREATE THE INITIAL DESIRE OF POSSESSION.

Just as newspaper, billboard, direct by mail and all other forms of advertising strive to arouse interest in a product, the best window display advertising is devoted to the most important phase of salesmanship; that of arousing interest in a new appliance or rearousing interest in one already well known.

For an example, we refer to the window display reproduced above. You will note that the matter of price is not referred to, because until the initial desire of possession has been created, prices are irrelevant. Also, the fact that the appliance shown is a combination gas range and gas refrigerator is only discernible on closer inspection. Also note that the passerby is not urged to rush into the showroom for a closer inspection. More important, a seed is planted in his or her mind that will blossom forth when the observer is in subsequent need of refrigerating equipment. Advertising that implants this seed is good advertising. This is the fundamental prerequisite of Window Display Advertising.

Some Pertinent Facts on Gas Versus Electricity for Cooking

By Special Correspondent

H. W. Bennett, Commercial Manager, Greenwich Gas Company, has the courage of his convictions and is mincing no words in telling his story. From the president down, his company is behind him—Editor.

TALK to the average intelligent American citizen and what is the impression you get? That electricity is the coming thing. That electricity is rapidly replacing gas for cooking. We will have to admit that the electrical industry has done a wonderful selling job, but when it comes to electricity replacing gas for cooking we will admit no such thing. But just refusing to admit it is not enough. If we believe in the merit of gas for cooking; if we believe it is the best fuel for cooking; then let's tell our gas consumers and give them some facts.

We have no quarrel with electricity; it has its place and a mighty important place and has contributed tremendously to the standards of living enjoyed by the American public at this date, but when it comes to heating and cooking then gas takes its hat off to no fuel.

This was Mr. Bennett's conviction when he tackled the problem as commercial manager of the Greenwich Gas Company where a condition that is unusual must be met and overcome. Greenwich has not had gas until three years ago. Up until that time other fuels have had their unobstructed way in Greenwich. But now the tables have turned. In Greenwich Mr. Bennett has met an attitude that aroused his ire. Greenwich homes looked upon gas as obsolete and old-fashioned. So Mr. Bennett determined to show them some facts.

With main extensions pushing rapidly through the various streets of Greenwich it became necessary for him to do something unusual and startling to jar the people of Greenwich to a realization that gas was there; that gas was the better cooking fuel and that gas was up and on its toes. What better way than to quote them some facts that could not even be criticised as being prejudiced in favor of gas or gathered from a biased standpoint to prove what the statistician hoped to prove. So Mr. Bennett referred to a late issue of one of the leading electrical magazines and got his information and figures from it.

These figures were used in the preparation of a series of three newspaper ads which fearlessly came out and told the story.

The first of these two advertisements quoted these electrical statistics. The third of the series told a very convincing and effective gas story. These advertisements were very well prepared; very well set up and have done a good job for the Greenwich Gas Company. Two of the ads that were used are reproduced herewith.

Having started Greenwich prospective consumers thinking by showing them some very startling facts and puncturing some of their illusions on the numbers of electric, oil, coal and gas ranges in use, number three was designed to mop up and make the thought permanent through a glowing testimonial to gas through its selection by New York City apartment houses. America's leading hotels; large industrial organizations, many of them electric; by builders of beautiful homes at Palm Beach and by 12,970,000 American homes where a complete choice of all fuels is available. The copy used in number three follows:

GAS
The quickest, most satisfactory fuel for cooking.
The preference of fuel for cooking is overwhelmingly in favor of gas.
NEW YORK CITY'S APARTMENT HOUSES are almost without exception equipped with Gas Ranges in their kitchens.
AMERICA'S LEADING HOTELS Hospitals, Clubs and Restaurants are equipped with Gas Ranges.
LARGE INDUSTRIAL ORGANIZATIONS serve their employees with their noonday meals cooked on Gas Ranges. Among them are: Greenwich Saving Bank, New York City; Standard Oil Company,

The homes of America prefer Gas for Cooking

1,500,000 Gas Ranges Sold in 1927
110,000 Electric Ranges Sold in 1927
—From Electrical Merchandising, June, 1928

Where Gas is available it is overwhelmingly preferred by American women for cooking.

The modern Gas Range with Oven Heat Control, Insulated Oven, Smooth top cooking surface offers a superior service to any other known fuel in speed, flexibility of control, and in cooking results. The newest and best types of gas ranges are now at our display rooms where we will be glad to explain their various features and advantages to you.

If you prefer, our representative will call at your convenience.

If You Desire
Deferred payments can be arranged, over a period of time.

THE GREENWICH GAS COMPANY

Phone 2900 **253 Greenwich Avenue**

Advertisement Number One

New York City; Western Electric Company, New York City; Brooklyn Edison Company, Brooklyn, N. Y.; Vacuum Oil Company, Bayonne, N. J.; General Electric Company, Harrison, N. J.; Public Service Electric and Gas Company, Newark, N. J.; Bureau of Standards, Department of Commerce, Washington, D. C., and many others.

AT PALM BEACH

America's wealthiest citizens have been building elaborate mansions. Into them have gone every equipment for fine living and large social entertaining. Isn't it significant that the kitchens of the following Palm Beach residences are equipped with gas ranges?

Stephen A. Lynch, North Ocean Boulevard; Gurnee Munn, North Ocean Boulevard; Charles A. Munn, North Ocean Boulevard; H. C. Phipps, North Ocean Boulevard; J. S. Phipps, North Ocean Boulevard; Col. Anthony A. Kuser, North Ocean Boulevard; Edward T. Stotesbury, North Ocean Boulevard; George Sloane, North Ocean Boulevard; Quentin F. Feitner, South Ocean Boulevard; John S. Pillsbury, South Ocean Boulevard; Adam G. Thomson, Jungle Road; Earle P. Charleton, South Ocean Boulevard; A. G. Kay, South Ocean Boulevard; E. F. Hutton, South Ocean Boulevard; Mrs. Henry R. Rea, South Ocean Boulevard; Edward S. Moore, South Ocean Boulevard; C. W. Bingham, South Ocean Boulevard; E. Phillips Sedgewick, South Country Road; A. J. Drexel Biddle, Barton Avenue; Mrs. Frank P. Frazier, South Ocean Boulevard; Frank M. Stresenreuter, Clark Avenue; Dr. Preston P. Satterwaite.

AND LAST BUT NOT LEAST

12,970,000 *homes where a complete choice of all fuels is available choose Gas.*
A complete ensemble of modern Gas Ranges for every cooking need can be seen at our display rooms. If you prefer, our representative will call on you with full information.

IF YOU DESIRE

Deferred payments can be arranged over a period of time.

THE GREENWICH GAS COMPANY
253 *Greenwich Avenue* *Telephone* **2900**

When interviewed about the results of this advertising Mr. Bennett states the following:

"This class of advertising has created a lot of favorable comment from a great many of our local people. The local electric light company seems to be very much puzzled about it. An official of another electrical concern here talked to the writer and begged to have us make comparison with all types of fuel instead of just electricity. I promised him I would, hence our ad this week No. 2 as you know.

"I attended the Sales Convention at Keene, New Hampshire, last week. One of the manufacturer's salesman asked me what we were doing to the electric company in Greenwich; I told him nothing. He said he had heard a lot of comment and wanted permission to use the same advertising in another property where they had a like condition to ours here. In a group of men after one of our meetings at the convention some one spoke up and said 'Hello, Greenwich, I hear you are using advertising that is "hot stuff."' I did not say very much, just stated we were using facts.

"To my mind a longer series of ads could be run along the same line to a good advantage. Do you recall the educational advertising run by Swift & Company some time ago? The electrical companies have had their own way long enough. These ads, to my mind, are educational and also in a sense stopping the electrical fellows from making misstatements regarding costs, etc."

How America Cooks

9,500,000 families by gas (manufactured)
3,470,000 families by gas (natural)
8,290,000 families by coal and wood
6,000,000 families by oil
590,000 families by electricity
27,850,000 total families, U. S. A.

Electrical Merchandising, June, 1928

Now Read These Figures!

10,830,000	Homes served with Manufactured Gas
3,730,000	Homes served with Natural Gas
14,560,000	Total Homes served with Gas
12,970,000	Homes equipped with Gas Ranges
17,596,000	Homes wired for Electricity
590,000	Homes equipped with Electric Ranges

Of the 14,560,000 homes where gas is available, 12,970,000 use it for cooking

Of the 17,596,000 homes wired for electricity, 3,000,000 have no gas available.

Figures taken from Electrical Merchandising, June, 1928.

Where Gas is available, it is unquestionably preferred as a cooking fuel by those who have the choice of any fuel.

On our display floor you will find the latest model Gas Ranges with Oven Heat Control, Insulated Oven and smooth top cooking surface. Here a size and style best suited for your kitchen or cooking needs can be selected.

THE GREENWICH GAS COMPANY

253 Greenwich Avenue **Telephone 2900**

Advertisement Number Two

1927 A. G. A. Proceedings Are Now Available

Copies of the proceedings of the 1927 annual convention of the American Gas Association can be had from Association Headquarters, 420 Lexington avenue, New York, N. Y., at $3 each.

This volume contains more than 1,500 pages, and is the official record of the last A. G. A. convention. All speeches and committee reports are included, as well as the discussion which followed the presentation of many of the addresses. A complete record of the general sessions and all the section meetings is given.

Every gas company library should have its copy for future reference, and gas men will find the volume of such value and use that its purchase for their home libraries will be more than justified.

Orders for copies of the 1927 proceedings should be sent to the American Gas Association, Inc., 420 Lexington avenue, New York, N. Y.

Association Activities

A. G. A. and affiliated gas associations' sectional activities and convention calendar

The Important Factor

By F. W. Steere

WHEN the history of this period is written, it may perhaps be called the era of economy in industry. We are not only devising the labor saving machinery that permits one man to do the work of many, but we are standardizing our products so that the machines for this standardized production are simple and low in first cost. Related industries are being combined under the same financial control for the purpose of greater economy in production, reduction in overhead, and a pooling of facilities for research and investigation to still further reduce the costs of production.

To the extent that our efforts in this so-called "campaign of efficiency" are successful and bring about the increased production of commodities with less human effort and fewer men—to that extent we are brought closer to the problems of who is going to employ the men so released and where is the buying power coming from to purchase this increased production.

Fruits of Laying-off

Repetitive processes give low costs only when the production is high. Products must be purchased with the returns from industry. "Laying off" men is laying off purchasing power. If all industry is actively pushing such economies, unemployment must result unless other factors are brought in to restore the balance. There are many indications that we are now beginning to feel the effects of just this condition.

There is no doubt that industry is accomplishing what it set out to accomplish so far as perfecting technique and eliminating human labor is concerned, and we have every reason to view these accomplishments with pride. The reduction of waste through the standardization of products is one of the valuable contributions to industry by the Secretary of the Department of Commerce; also the collaboration of industry with the educational institutions of the country for wider and more effective research is working out most satisfactorily. Theoretically, the combination or organization of capital should be no more disturbing than any other kind of organization, as one of the first lessons learned by the human race was the relative futility of individual effort and, as the problems of existence increased in size and complexity, the combination and organization of human effort followed naturally. The magnitude of some of the problems facing this generation undoubtedly calls for a combination and organization of both human effort and capital on a scale never before contemplated. In other words, to state the whole problem briefly, while our metnods seem sound there is no denying the fact that we have brought ourselves to a condition of over-production in practically every field.

I wish at this time to discuss but one phase of this extremely complicated situation. Over-production tends to unemployment. Unemployment brings an employers' labor market. This applies not only to the day laborer but through all strata of industry. Combining organizations always means the elimination of some of the high salaried overhead, just the same as our mechanical improvements eliminate day labor. Economically, vice presidents out of jobs are much less important than day laborers out of jobs, as vice presidents are less numerous, representing, as individuals, only a very small percentage of the country's purchasing power—but the law of supply and demand affects both. When there are more men than there are jobs, the employer has the advantage.

The quality of our prosperity for some time is going to be determined by the policy of industry or, to put it another way, by the attitude of employers during this period. If the tendency is to push the advantage and employ at the lowest rate, the effect will be to further slow down buying and further aggravate the difficulty. Prosperity is a measure of the rate at which money circulates. Wealth does not consist of accumulated labor unless that accumulated labor can be put to useful service.

A Hollow Boast

The manager of a large utility recently boasted that due to unemployment in his locality he was able to hire labor for twenty cents per hour below the prevailing rate. Apparently no importance was attached to the fact that he was a factor in depressing the wage rate below the point at which any man could decently maintain a family. A fair analysis of this situation would undoubtedly show that he not only did not realize the apparent saving due to the lower rate, but what is far more important, he was helping to establish a wage rate in his community which would restrict purchasing power to the bare necessities of life. The amount of money involved in this single instance is unimportant, but the mental attitude of this manager is of the greatest importance—the effect would be to stifle all business; gas services would not be extended; retail merchants would not move their goods; and, in general, there would be a conspicuous lack of prosperity. In this illustration we need not discuss the effect of such a policy on the individuals of the community—this should be made the subject of a separate study but, in general, we must know that all of the by-products of a defective policy are bad—just as the by-products of a sound policy are good. The low wage fallacy has done more to interfere with real prosperity than all of the other so-called economic causes put together.

The governing motive through all industry should be—pay the highest return in wages and salaries that the business will permit. Efficiency and economy programs

Abstract of President's address before the 36th Annual Convention of the Michigan Gas Association July 5, 1928, at Mackinac Island, Michigan.

CONVENTION CALENDAR

SEPTEMBER

17-20 A. S. M. E. National Fuels Meeting, Cleveland, Ohio.

17-21 Pacific Coast Gas Association. Annual meeting, Coronado, Cal. Clifford Johnstone, 447 Sutter Street, San Francisco, Cal., secretary.

20-21 Empire State Gas and Electric Association. Annual meeting, Saranac Lake, N. Y. C. H. B. Chapin, Grand Central Terminal, New York, N. Y., secretary.

OCTOBER

8-12 American Gas Association. Annual meeting, Atlantic City, N. J. Alexander Forward, 420 Lexington Avenue, New York, N. Y., managing director.

should be directed to the problem of reducing costs and, simultaneously, increasing the purchasing power of the community. It requires no especial ability to lay off men and cut wages, but this does not produce prosperity. Industry today needs the kind of management that is constructive in the broad sense, the sort of efficiency that reduces costs and builds up the individual. We have had too much of the kind of efficiency that is based on an apparent and immediate dollars and cents saving, but which carries with it the seeds of its own destruction.

Any program of economy that is not basically constructive will—in the end—do more harm than good. We must realize that by far the most important element in the success of any undertaking—whether it is the developing of an industry or the building of a nation—is the quality of the individuals composing it.

With the present trend of the industry, there is less and less place for individual ownership as it was known in past generations. But the desire and instinct to own and to create is what put this country where it is today—this must not be destroyed. One of the problems of modern industry is to retain and develop this creative instinct and combine with it the benefits of the larger organization.

If we are to continue to lead the world in progress and prosperity, our success will be achieved more and more by developing men first—not men who are haunted by the fear that their departments will be abolished and that they will have to start all over again—but rather men who have the self-reliance and initiative that is inherent in this generation.

Not Altruism

This may to some sound like altruism, but a cold-blooded analysis will show it is just the opposite. The best evidence is that those concerns which are giving this phase of their business the serious consideration it deserves, do accumulate the surplus and pay the dividends. We must keep in mind that progress is as much a process of discarding outgrown theories and practices as of evolving new ones.

There is no denying the evidence that production and consumption are tending to get out of balance. There is no question that this tendency is directly the result of our greatly increased scientific knowledge and mechanical efficiency. In other words, the very factors that we regard most highly are the factors that are tending to defeat the object for which we are working. Some factor must be lacking—some phase of the situation is not getting the attention its importance warrants. Our methods are sound as far as they go, but we do not go far enough.

The important factor that has not received the study that its importance justifies is the human element as an economic force. We cannot realize the full benefits of the great advances that have already been made, nor expect to continue even at the present rate, unless we recognize the relative importance of all of the forces we are using.

It is not necessary to cite illustrations to show the practical importance of this line of research. It is not the kind of problem that is easily reduced to concrete figures and definite recommendations. But a general formula to use until we have found out more about this human element—how to reduce it to concrete figures—how to make recommendations that will always produce the maximum dividends over a long swing, I know of nothing better to recommend than—"Do unto others as ye would they should do unto you."

NEWSPAPER ADS MAKE CLEAN SWEEP OF PRIZES

THE Edison Electric Illuminating Company of Boston, Boston, Mass., the Equitable Gas Company of Pittsburgh, Pa., and the Georgia Power Company of Atlanta, Ga., are winners of the three first places in a nationwide advertising contest conducted among the utilities of the country, according to announcement made at the meeting of the Public Utilities Advertising Association Tuesday, July 10, at the International Advertising Convention in Detroit.

Newspaper advertisements captured all the winning places. The contest was conducted for advertising in three separate divisions—electric light and power, gas, electric railway and bus transportation. The joint co-operation of the National Electric Light Association, American Gas Association and the American Railway Association was extended in their respective fields of operation.

Announcement of these awards by Irving M. Tuteur of Chicago, chairman of the Better Copy Committee of the Public Utilities Advertising Association, was the feature of the Tuesday afternoon program of the association, which assembled in Detroit as one of the departmentals of the International Advertising Association. Presentation of the certificates of award was made by Donald M. Mackie of Jackson, Mich., president of the Public Utilities Advertising Association, acting in co-operation with representatives of the National Utility Associations.

The contest had for its purpose improving the standard of public utility advertising appearing in the 26,000 newspapers in the United States. Over 4,000 entries were received from utility companies operating in Canada, New Zealand and Australia.

In the Gas Division first place was awarded to the Equitable Gas Company of Pittsburgh, Pa.; second place to the Union Gas & Electric Company, Cincinnati, O.; third place to the Lone Star Gas Company, of Dallas, Texas.

The prize winning advertisements appear in the new 1928 edition of the Better Copy portfolio, together with some 600 advertisements submitted by public utilities in the United States and Canada.

The judges who passed upon the prize-winning advertisements included: Alexander Forward, managing director, and Charles W. Person, secretary of the Publicity and Advertising Section, American Gas Association, New York City; Donald M. Mackie, Hodenpyl, Hardy & Co., Inc., Jackson, Mich., and Irving M. Tuteur, vice-president of McJunkin Advertising Company, Chicago, Ill.

REPORT OF GENERAL NOMINATING COMMITTEE

TO MEMBERS of the American Gas Association: In compliance with Section 2 of Article II of the By-Laws of the American Gas Association, announcement is hereby made to the membership of the following report of the General Nominating Committee which will be presented to the annual convention in Atlantic City, N. J., in October, 1928:

For President—Oscar H. Fogg, vice-president, Consolidated Gas Co. of New York, N. Y.

For Vice-President—Bernard J. Mullaney, vice-president, the Peoples Gas Light and Coke Co., Chicago, Ill.

For Treasurer—Clifford E. Paige, vice-president, the Brooklyn Union Gas Co., Brooklyn, N. Y.

For Directors:

R. B. Brown, Milwaukee Gas Light Co., Milwaukee, Wis.

Henry L. Doherty, H. L. Doherty & Co., New York, N. Y.

W. W. Freeman, Columbia Gas & Electric Corp., New York, N. Y.

R. C. Hoffman, Standard Gas Equipment Corp., Baltimore, Md.

Samuel Insull, Jr., Midland Utilities Co., Chicago, Ill.

J. B. Klumpp, the United Gas Improvement Co., Philadelphia, Pa.

F. A. Lemke, Humphrey Co., Kalamazoo, Mich.

A. B. Macbeth, Southern California Gas Co., Los Angeles, Cal.

Chas. R. Pritchard, Lynn Gas & Electric Co., Lynn, Mass.

Respectfully submitted,

H. H. Ganser, chairman; J. D. Creveling, E. L. Hall, A. E. Merchant, J. Arnold Norcross and W. L. Smith.

The following are nominated to serve as Section officers for the year 1928-1929:

Accounting Section: Chairman, F. H. Patterson, Rochester Gas & Electric Corp., Rochester, N. Y.; vice-chairman, J. L. Conover, Public Service Electric & Gas Co., Newark, N. J.

Commercial Section: Chairman, G. M. Karshner, Consolidated Gas Company of New York, N. Y.; vice-chairman, G. E. Whitwell, Equitable Gas Co., Pittsburgh, Pa.

Industrial Gas Section: Chairman, J. P. Leinroth, Public Service Electric & Gas Co., Newark, N. J.; vice-chairman, C. C. Krausse, Consolidated Gas, Electric Light and Power Co., Baltimore, Md.

Manufacturers' Section: Chairman, J. A. Fry, Detroit-Michigan Stove Co., Detroit, Mich.; vice-chairman, Floyd C. Curfman, the Improved Equipment Co., New York, N. Y.

Publicity and Advertising Section: Chairman, E. Frank Gardiner, Midland Utilities Co., Chicago, Ill.;; vice-chairman, James M. Bennett, Philadelphia Electric Co., Philadelphia, Pa.

Technical Section: Chairman, H. E. Bates, the Peoples Gas Light & Coke Co., Chicago, Ill.; vice-chairman, B. V. Pfeiffer, the United Gas Improvement Co., Philadelphia, Pa.

PUBLIC UTILITIES ADVERTISING ASSOCIATION ELECTS J. C. BARNES PRESIDENT

AT THE annual meeting of the Public Utilities Advertising Association, held in Detroit, Michigan, July 10, the following officers and directors were elected:

Officers

President, J. C. Barnes, New Orleans Public Service, Inc., New Orleans, La.

First Vice-President, L. D. Gibbs, Edison Electric Illuminating Co. of Boston, Boston, Mass.

Second Vice-President, Dana H. Howard, Commonwealth Edison Co., Chicago, Ill.

Third Vice-President, Irving M. Tuteur, McJunkin Advertising Company, Chicago, Ill.

Secretary, T. P. Pfeiffer, Byllesby Engineering & Management Corp., Chicago, Ill.

Treasurer, C. W. Person, American Gas Association, New York, N. Y.

Directors

Donald M. Mackie, Allied Power and Light Company, Jackson, Mich.

W. H. Hodge, Byllesby Engineering & Management Corp., Chicago, Ill.

James M. Bennett, United Gas Improvement Company, Philadelphia, Pa.

These directors were elected to succeed Messrs. Watt, Lightbody and Strandborg, whose terms had expired. Mr. Frank L. Blanchard, whose term as the association's representative on the National Advertising Commission had expired, was reelected.

A. G. A. Headquarters Staff Take Lessons in Prone Pressure Resuscitation

Members of the headquarter's staff of the American Gas Association were taught the prone pressure method of resuscitation recently by two experienced instructors of the Consolidated Gas Company of New York.

The one real film of the association was shown at the demonstration and a lecture was also given.

The value of knowing how to apply the prone pressure method of resuscitation cannot be overestimated. Alexander Forward, managing director of the association, said in introducing the lecturer to the headquarter's staff:

"No one can tell when he will be called upon to save a human life, perhaps in his own home, which may be endangered by electric shock, drowning, or asphyxiation," he said. "The entire utility industry is to be congratulated upon educating its employees in this method of life-saving.

"To look over the number of McCarter medals award by this association is to be convinced of the intrinsic value of such knowledge. Today more than 200 medals have been presented, and every medal means that one human life has been saved that would otherwise have been lost."

The demonstration was made possible through the cooperation of Oscar H. Fogg, vice-president of the Consolidated Gas Company, and president of the American Gas Association.

A. G. A. employees being instructed in the Prone Pressure method of resuscitation

Delegates to Fuels Meeting Appointed

Official delegates to the Second National Fuels Meeting, to be held at Cleveland, Ohio, September 17 to 20, have been appointed by President G. H. Fogg as follows:

P. T. Dashiell, the United Gas Improvement Co., Philadelphia, Pa.

J. D. Davis, the U. S. Bureau of Mines, Pittsburgh, Pa.

Henry Fink, Detroit City Gas Co., Detroit, Mich.

A. D. Fryendall, the Peoples Gas Light & Coke Co., Chicago, Ill.

H. O. Loebell, the Surface Combustion Co., New York, N. Y.

R. L. Manier, the Syracuse Lighting Co., Syracuse, N. Y.

I. K. Peck, Midland Utilities Co., Chicago, Ill.

Horace C. Porter, consulting engineer, Philadelphia, Pa.

H. J. Rose, the Koppers Company, Pittsburgh, Pa.

J. T. Ward, Massachusetts Institute of Technology, Cambridge, Mass.

E. C. Weston, Toledo Edison Co., Toledo, Ohio.

H. B. Young, the Chicago By-Product Co., Chicago, Ill.

1927 Natural Gas Convention Proceedings Off the Press

The volume of Proceedings of the 1927 annual convention of the Natural Gas Association of America is now ready for distribution. The price is $2.50 a copy.

It is expected that this edition of the natural gas proceedings will be exhausted in the near future. Preliminary orders received at A. G. A. headquarters indicate that the complete and official record of the Cincinnati meeting of the natural gas men will be in great demand.

The book contains a record of all convention procedure as well as all speeches and committee reports.

The New Rex-Patrol *Automatic* Water Heater

Patent Pending

FULFILLS your requirements to dominate water heater sales in your territory. It has all the features of value combined in other water heaters in addition to exclusive features that cannot be found in any other tank water heater:

Self-acting in every respect. It requires no attention from the owner.

Patrol Valve equipped. An assurance of safety should the pilot light go out.

Economical in operation. Rex blue-flame burner assures complete combustion of all gas used.

It is dependable. The owner is sure of continuous hot water service.

No accessories required to make this water heater automatic.

By a wide margin the lowest priced automatic water heater built.

Write us about the franchise in your territory and our offer for a demonstration.

© 1928 The Cleveland Heater Co.

THE CLEVELAND HEATER CO
1900 W. 112th St. Cleveland, Ohio

SPEE DEE

TRADE MARK REGISTERED

BOILER

New
Engineering Discoveries *give Amazing Results*

THE efforts of Rex engineers have been rewarded by results that water heating engineers now recognize as the most important and far-reaching contribution of the year to the water heater industry.

The internal riser and the shorter and more compact construction of the 24-gallon Spee-Dee Boiler lowers radiation loss and furnishes more useable hot water than the 30-gallon standard range boiler.

In addition it delivers useable hot water quicker than the ordinary range boiler. It is the last word in hot water equipment, the simplest and most economical hot water storage tank.

Act today—if you are interested in the biggest opportunity which has been offered in years. With the Spee-Dee Franchise you will be able to satisfy both the higher price and the moderate price buyer and that means more sales.

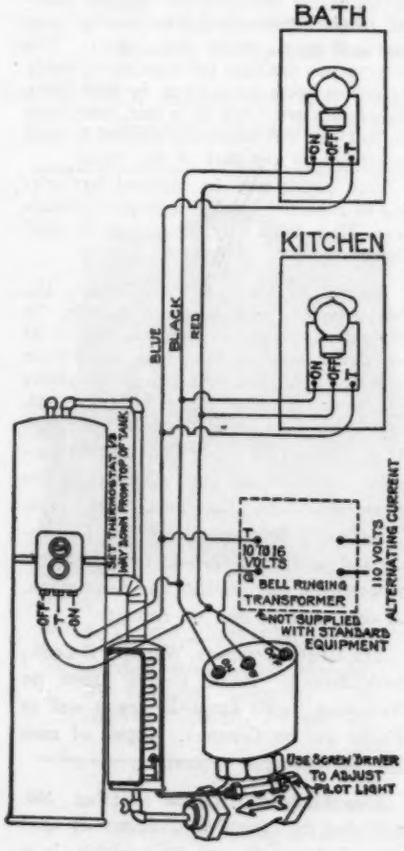
© 1928 The Cleveland Heater Co.

THE CLEVELAND HEATER CO
1900 W. 112th St. Cleveland, Ohio

Equipment News

New Water Heater Control

The Savutime Company, Inc., Rochester, N. Y., have issued a folder describing their "Sav-U-Time" automatic, thermostatic control for gas water heaters. Control buttons can be placed in any room of the house. When the gas is on a red light shows above each push button. When the water in the boiler reaches a given temperature the device automatically shuts off the gas.



"Sav-U-Time" control

If only a small quantity of hot water is required, the gas can be cut off by pushing any one of the "off" buttons. Illustration shows hookup.

Charging Barrows for Water Gas Generators

De Huff & Hopkins, 1419 Chestnut street, Philadelphia, Pa., manufacture the McNeil Automatic Charging Barrows, which are especially designed for charging water gas generators. The barrows are built with either square or round noses. They are equipped with large diameter full swiveling casters. This enables the handling of heavier loads. They can be built to dimensions to meet special requirements.

Battery of barrows at Market Street Works, Public Service Electric and Gas Co., Newark, N. J.

Dies for Brass Pipe

The Armstrong Manufacturing Company, Bridgeport, Pa., recently issued a folder describing their new Armstrong dies for brass pipe only. They state that dies meant for iron pipe should not be used on brass pipe, as the latter cannot be caulked up and kept tight like iron pipe. Brass pipe must be cut with true tight threads. Recent tests have proved that these dies cut 2-inch brass pipe with less pull than is necessary to cut one-half inch iron pipe.

Brass Pipe Dies

New Size Portable Air Compressor

Ingersoll-Rand Company, 11 Broadway, New York, has added a seventh size to its line of portable air compressors.

This new size (4¼ in. bore by 4 in. stroke) has a piston displacement of 82 cubic feet per minute. It is intended primarily for use by contractors, public utilities, cities, towns, etc., requiring a unit of slightly larger capacity than the 4¼ in. by 4 in. 66 cubic feet machine.

The new compressor, like the other I-R Portables, is equipped with a four-cylinder, tractor-type, Waukesha motor. It is available on broad-faced steel wheels, on steel wheels with rubber tires, on I-R trailer mounting, on Ford or Chevrolet truck, or without running gear for mounting on skids, railway car, etc.

The 4¼ in. by 4 in. unit embodies all the exclusive Ingersoll-Rand features which are found on the other six sizes.

New Roberts Burner for Converting Hot Air Coal Furnaces to Gas Fired Furnaces

The Roberts Gas Burner Corporation, Buffalo, N. Y., announce the new Roberts Gas Burner assembled unit for the conversion of hot air coal furnaces for house heating to gas fired furnaces.

The combustion principles and the control of the air for combustion and direction thereof into the burner to each port insures perfect combustion and reduces over-ventilation to a minimum and increases the flame temperature. The flame scrubs along special radiants of china clay, having rough surfaces which at high temperature radiates heat rapidly. The combustion space is reduced, combustion taking place between the radiants and the boiler leg or furnace walls.

Roberts new gas burner unit

This new Roberts unit is constructed of two major parts, namely, the burner heads and secondary air duct. The sec-

ondary air duct contains the Roberts Steel Drawn Venturi mixers, which have practically eliminated flashing back, due to their interior smoothness and Venturi design, also the Roberts Safety Pilot Light and wires for attachment to the thermostat circuit. The manifold passes through the air-duct so that when the burner is off all air is excluded by the shutter on the duct, other openings being sealed when installation is made. The manifold has a gas governor and motor acting valve or magnetic valve mounted on the inlet side and a diaphragm control for operating the air duct shutter on the opposite side of the duct.

Installation can be easily made. Having removed the grates and ash-pit door, it is only necessary to mount the controls on the manifold, remove the burner heads from the duct and push the duct through the ash-pit opening, replacing the heads thereon. Fill this space between the burner and the water leg with moulded asbestos, place the radiants in position, run the fuel line and the necessary wiring.

Descriptive bulletin will be mailed on request.

Book Review

Handbook of Petroleum, Asphalt, and Natural Gas. By Roy Cross. Published as Bulletin No. 25 (1928 Revision) by Kansas City Testing Laboratory, Kansas City, Mo. 832 pages. Price, Fabrikoid, stiff cover, $7.50; flexible leather cover with India paper, $10.

The scope and character of this new edition is well indicated by the preface of the work itself.

"The purpose of this publication is to set forth in a condensed form technical and statistical information on the production, properties, handling, refining, and methods of valuation of petroleum and related products. It is designed for the practical oil man and the student of petroleum, as a quick reference manual, and has been developed from personal notes gathered by the author during the past twenty years. No attempt has been made to incorporate matter found in the usual engineering handbooks, but rather to include data not found in such publications."

The gas man should note that although the subject of natural gas occupies less than one-tenth of the entire volume, there are many other sections of the work containing data regarding properties of petroleum and petroleum utilization, and on other subjects of interest to the gas industry.

Principles of Valuation. By J. A. Grimes and W. H. Craigue. Prentice-Hall, Inc., New York. 274 pages. Price, $10.

The term "valuation" as used in this work does not have the usual public-utility significance. It relates rather to the appraisal of future values of present sums or with mathematical procedure which shows the influence of time upon value. This book is a very valuable treatise upon the statistical and accounting practice which must prevail in fiscal matters. It will be useful also in making clear the proper accounting procedure in many phases of utility valuation, especially those connected with appraisal of natural gas properties where the feature of depletion and present value of future income is to be computed. Those having to do with the Federal tax aspects of the utility companies will also find the text and the elaborate and complete tables of considerable interest.

Trade Catalogs

Kernit Incinerator Company, Ampere, N. J., has just issued a booklet entitled, "Modern Disposal of Waste," which treats of the problem of disposing of garbage and waste. It also describes the operation and installation of the Kernit Gas-fired Incinerator. Copy will be sent upon request.

Zwetsch, Heinzlemann & Company, Investment Securities, 37 William street, New York, have recently issued a folder that should be of special interest to natural gas men. This folder gives a listing and status of some seventy-five natural gas companies' bonds. A copy will be mailed upon request.

Connersville Blower Company, Connersville, Ind., have recently brought out Bulletin 17-A, which illustrates and describes their SF and SFH Rotary Positive Blowers for large furnace installations, various tables and curves showing the characteristics are given. Copy upon request.

Pittsburgh Equitable Meter Company, Pittsburgh, Pa., have just issued a vest pocket memo book which contains much engineering data on a variety of subjects. Maps in color are also included, as well as the census, postal rates and similar information. This book is attractively bound and will be sent upon personal request to Pittsburgh Equitable Meter Company.

Caterpillar Tractor Company, San Leandro, Cal., have recently issued an attractive booklet of forty pages illustrating and describing the use of their tractor units in utility plants. A copy will be sent upon request.

Ingersoll-Rand has just completed the sixth edition of its 140-page, two-color book entitled "100 and 1 Ways to Save Money With Portable Compressors." In this book the company has embodied comparative cost data on its portable air compressors and air-operated tools (rock drills, paving breakers, clay diggers, backfill tampers, grinders, hoists, riveting hammers, chippers, metal drills, etc.). The information has been put together in handy reference, cross-index form. In most cases, figures are presented on a man-hour basis so that they can be readily applied to local conditions in any part of the world.

Free copies may be obtained by writing to Ingersoll-Rand Company, 11 Broadway, New York City, or any of its local branches.

George M. Clark & Co., Chicago, Ill., have issued a new brochure entitled, "A Record of Progress." It is a history of the development of the Jewel range from 1882 to 1928. The first illustration shows the Jewel gasoline range built in 1882, which was the forerunner of the gas range. It then shows by illustrations the development of the range by showing models made in 1888, 1900, 1905, 1906, 1913, 1920 and a 1928 model. Other illustrations show special features of the present models with specifications and descriptions. A copy will be sent on request.

The Bristol Company, Waterbury, Conn., have recently issued Catalog 1800 on Recording Liquid Level Gauges as well as Folder 365 on Counters. Copies of each will be sent upon request.

The Link-Belt General Catalog 500, published by Link-Belt Company of Chicago, Indianapolis and Philadelphia, is a good example of what an informative general catalog should be.

It consists of 1,088 pages and not only covers in engineering data and list prices the complete chain, sprocket, power transmission, elevating and conveying and engineering divisions of that company's business, but contains considerable data for which the engineer has use.

Cameron Multi-Stage Centrifugal Pumps are described in a catalogue recently issued by Ingersoll-Rand Company, New York. This is well illustrated and neatly arranged. Copy upon request.

Let these three new *Welsbach* Heaters score for you

Here they are, all ready to go to bat:—Numbers 67, 69 and 71. A more brilliant trio of radiant gas heaters never warmed a manager's heart or lifted a sales quota for a greater number of satisfied customers. Each one has the Welsbach "Million-Dollar" burner, improved header, choke and flue connection—exclusive features which never fail to register safe hits.

Of course you will want to include the famous fast-selling Welsbach veterans in your line-up:—particularly Numbers 47, 49 and 51.

No. 67—10 Glowers, golden brown finish. Height, 23 inches. Depth, 11½ inches. Width, 24 inches.

No. 69—12 Glowers, golden brown finish. Height, 23 inches. Depth, 11½ inches. Width, 28 inches.

No. 71—7 Glowers, golden brown finish. Height, 23 inches. Depth, 11½ inches. Width, 20¼ inches.

All Welsbach heaters bat 1000% in appearance as well as performance. They are beautifully designed along artistic lines and finished in silver, golden brown and many other attractive finishes. And—their remarkable price range enables them to profitably connect with every high or low offer that comes within striking distance. Write for complete information today.

Welsbach Radiant Gas Heaters

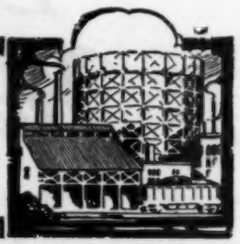
Approved by the A.G.A. Testing Laboratory

Approved by Good Housekeeping Institute

Member American Gas Association

WELSBACH COMPANY, Gloucester City, N. J. ***Offices in Principal Cities***

NEWS OF THE GAS INDUSTRY



Gas Company Discontinues Its Coke Business

The Public Service Company of Colorado announces that, effective July 15, it will cease to manufacture or sell coke. In this connection, it takes occasion to say:

"Since coke is a by-product from manufactured gas, this action is obligatory on our part. Quite naturally the association which we have enjoyed over a period of years has been pleasant, and its severance a matter of deep regret.

"You will obtain, we feel sure, more satisfactory and economical results from the use of natural gas, which we can commend to you most highly."

Thus far nothing has been said about the cessation of its tar works, from which there is produced many by-products from coal tar, but it looks like this is coming.

American Standards Association to Succeed American Engineering Standards Committee

Reconstruction of the American Engineering Standards Committee to keep pace with the growth of the industrial standardization movement in the United States is now under way, according to an announcement by the committee. The principal features of the reconstruction are the definite federation of national organizations, under the name American Standards Association, in such a way that trade associations interested in standardization may more readily join in the direction of the movement; placing the technical work of approving standards in a standards council, and concentrating administrative and financial responsibility in a board of directors composed of twelve industrial executives.

The reorganization has been unanimously approved by the main committee of the A. E. S. C., and is now being voted upon by the member bodies. The action of the committee results from more than a year's intensive consideration of the subject by the main committee and rules committee. The latter was enlarged for the purpose to include a representative of each of the nineteen member bodies desiring representation.

In submitting the plan for the formal approval of the member bodies, William J. Serrill, chairman of the committee, states:

"The ten years' experience of the committee has brought to light certain fundamental difficulties inherent in the old organization. It is the purpose of the reorganization to eliminate these difficulties, to place the operation of the committee on a sound administrative basis, and to facilitate the financing of the work on an adequate scale."

Teagle Becomes Member of Advisory Board for Bituminous Coal Conference

Walter C. Teagle, president of the Standard Oil Company of New Jersey, has accepted an invitation to become a member of the Advisory Board for the Second International Conference on Bituminous Coal to be held at the Carnegie Institute of Technology in the week of November 19, 1928, President Thomas S. Baker has announced.

Acceptance of Mr. Teagle to serve on the board, the announcement points out, is considered by President Baker and his associates as a significant indication of the increasing interest that the oil companies, particularly the Standard group, are showing in the bituminous coal as the source of motor spirits of the future.

Honor Student Accepts Position with A. G. A. Testing Laboratory

Mr. R. Carroll Albrecht, a graduate in gas engineering at Johns Hopkins University in 1928, has accepted a position with the Laboratory of the American Gas Association at Cleveland, Ohio. Mr. Albrecht was the honor student in his class in gas engineering.

Increased French Production of Tar and Benzol

The French production of tar in 1927 totaled 487,000 metric tons, compared with 465,000 tons in 1926. The output from the gas factories decreased, while that of the coke furnaces was increased during the past year. The decline was due to putting numerous water gas installations into operation and the suppression of distillation plants by the gas companies which bought from neighboring cokeries. The increased tar production of the coke furnaces followed the lighting of new batteries in the basins of the north and east. As the French consumption of metallurgical coke is larger than the domestic production, additional batteries are under construction, principally in the east.

The gas plant and the six cokeries of the Saar basin produced 116,000 tons of tar in 1927, compared with 105 tons in 1926. About half the output was exported.

Bridgeton, N. J., Gas Light Company Elects Officers

At the annual meeting of the stockholders of the Bridgeton Gas Light Company the following officers were elected: Bloomfield Minch, William C. Mulford, Edward P. Bacon, Joseph H. Powell, J. Herbert Fithian, directors:

After the stockholders' meeting, the directors met and organized by electing these officers:

Bloomfield H. Minch, president.

Edward P. Bacon, vice-president.

William C. Mulford, secretary and auditor.

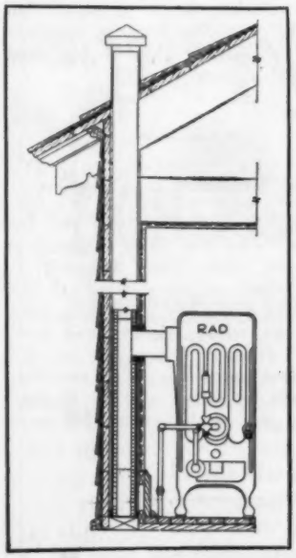
Jacob B. Jones, superintendent and treasurer.

Seorim DuBois, Jr., assistant superintendent.

Mrs. E. L. Harwood, assistant treasurer.

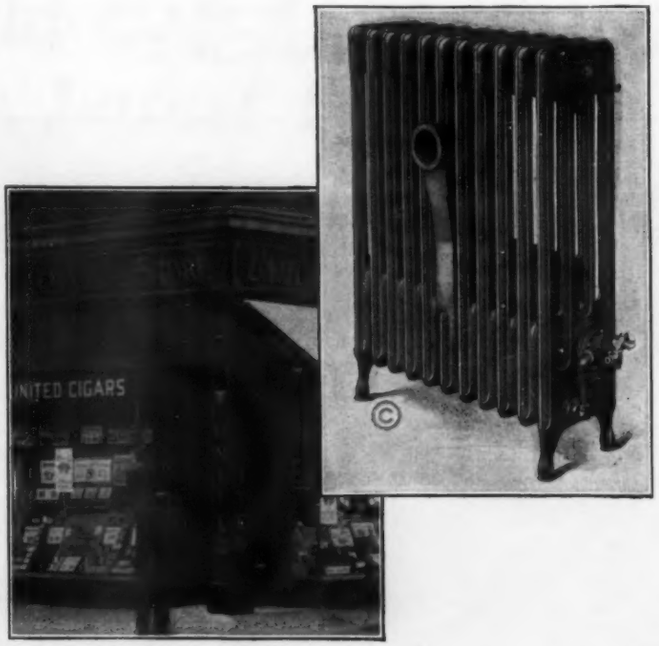
The stockholders meeting had the largest attendance in the history of the company.

STEAM FOR HEAT — GAS FOR FUEL



Solving The Moisture Problem

Clow Vented Gasteam Radiators have solved the moisture problem that has held back gas heating in many sections of the country. The above diagram shows how surplus moisture in the products of combustion is disposed of.



$10,000 Worth of Gas Business—*That is Easy to Get*

The gas consumption in the 48 United Cigar Store Gasteam installations, in one large city, amounts to $10,000 a year. In towns of every size—wherever there is gas—there are stores, restaurants, and other buildings that are prospects for this ideal heat—all potential gas consumers.

Every small shop and store using Clow Gasteam — on the average—brings a manufactured gas company over $200 worth of gas business per year.

And this commercial load does not greatly interfere with the regular "breakfast", "evening", "Sunday" peak—as the commercial load is largely off during these periods.

Our new catalog shows the application of Gasteam for all types of buildings—in all parts of the country. Send for it.

JAMES B. CLOW & SONS
201-299 North Talman Avenue, Chicago

CLOW GASTEAM

A. G. A. and Underwriters' Laboratories Approved.

STOCKED IN EVERY SECTION OF THE COUNTRY

An Example of an Attractive Branch Office

The Southern Counties Gas Company, operating in towns near Los Angeles, believes thoroughly in the proposition of having neat and attractive offices.

The accompanying photo shows the handsome office building of the concern at Fullerton, Calif.

New Gas Schedules Approved

The Public Service Commission has approved new gas schedules as follows:

New York Power & Light Corp.—Gas service supplied in Oneida District. Schedule effective July 1, 1928, provides block rate as follows for use of service for all purposes: First 100 C. F. or less per month $1;; next 2,900 C. F. $1.60 per M. C. F.; next 17,000 C. F. $1.25 per M. C. F.; all over 20,000 C. F. per month $1 per M. C. F. Minimum charge $1 per month for first 150 C. F. of demand and 4c. per month for each additional C. F. of demand. Rate (per M. C. F.) heretofore in effect: First 1,000 C. F. $2.15; next 6,000 C. F. $2; next 8,000 C. F. $1.75; all over 15,000 C. F. per month $1.60. Minimum charge $1 per month.

Utica Gas & Electric Co.—Gas service supplied in Canastota District. Schedule effective July 1, 1928, provides block rate as follows for use of service for all purposes: First 100 C. F. or less per month $1; next 2,900 C. F. $1.60 per M. C. F.; next 17,000 C. F. $1.25 per M. C. F.; all over 20,000 C. F. per month $1 per M. C. F. Minimum charge $1 per month for first 150 C. F. of demand per hour and 4c. per month for each additional C. F. of demand per hour. Rate heretofore in effect: First 100 C. F. per month 95c.; next 2,900 C. F. 20c. per 100 C. F.; all over 3,000 C. F. per month, 18c. per 100 C. F. Minimum charge $1 per month.

Westchester Lighting Co.—Schedules effective May 22, 1928, applicable to gas service for light, heat, or power in Edgemont District, Scarsdale District, and Weaver Street District, reduce the rate by 5c. per M. C. F. for all consumption in excess of first 100 C. F. per month. New block rate is 80c. for first 100 C. F., $1.55 per M. C. F. for next 100,000 C. F.; $1.50 for next 200,000 C. F.; $1.45 for next 300,000 C. F.; $1.40 for next 400,000 C. F., and $1.35 per M. C. F. for all over 1,000,100 C. F. per month.

Cahokia Gas Co. Is Given Grant

The Illinois Commerce Commission recently announced an order granting permission to the Cahokia Manufacturers Gas Company to construct and operate distribution systems for the transmission and sale of natural or manufactured gas for industrial and other purposes in and about the city of East St. Louis and the village of Madison.

The order carries the proviso that the permission is void unless the company secures an adequate supply of gas at a rate approved by the commission and also if the company fails to start construction within one year and service within six months after construction starts.

Deeds Covering the Natural Gas Pipe Line

There was filed with William Barber, county clerk and recorder at Pueblo, Colo., on July 3, deeds for property valued at $19,200,000. The deeds were drawn in New York on June 5 and gave title to the 255-mile pipe line, Amarillo-Denver, together with all rights of way and equipment to the Colorado Interstate Gas Company. The Interstate then filed a first mortgage and deed of collateral trust, favorable to the Equitable Trust Company of New York, providing for the issuance of gold seal sinking fund 6 per cent bonds, payable June 1, 1948.

Granted Reduction in Valuation

The Citizens Gas Company of Indianapolis, Ind., has been granted a reduction of more than $600,000 in valuation when representatives of the company appeared before the state board of tax commissioners and protested the original figure, set at $7,321,000 a few years ago. The new figure for 1928 valuation will be $6,628,370, an increase of almost $200,000 over last year.

Authorizes Securities Increase

The Sheridan Gas, Oil and Coal Company, Sheridan, Ind., has been authorized by the Indiana Public Service Commission to issue $65,000 in securities and to increase rates on artificial gas at Sheridan.

Voters Approve Granting of Franchise

Pella, Iowa, voters returned a 506 majority in favor of a franchise to the Central States Electric Company of Cedar Rapids to install and operate a gas service in that city. Company officials estimate that $100,000 will be spent upon the plant and distribution system. A line to Knoxville, furnishing gas, will cost about $50,000, and service is expected to be started September 1.

To Augment Gas Supply

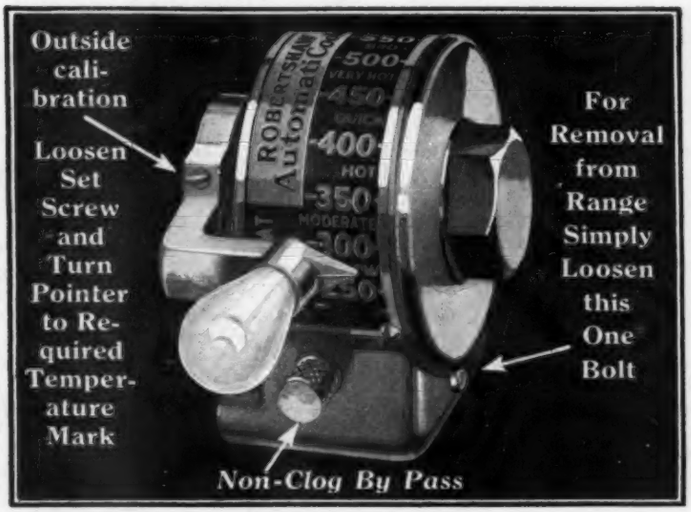
The Magnolia Gas Company is laying a new 18-inch gas pipe line from the fields near Monroe, Louisiana, to connect with the gas feed line which serves the State of Texas. This will give the Lone Star a better gas service.

You Should Get Acquainted with the Latest Features

of the

"B" Type

ROBERTSHAW AutomatiCook


Outside calibration
Loosen Set Screw and Turn Pointer to Required Temperature Mark
For Removal from Range Simply Loosen this One Bolt
Non-Clog By Pass

Outside Calibration (*a comparatively late improvement*) Takes just a few seconds to change the temperature setting if required, by means of a convenient set-screw on the temperature pointer. Merely loosen the set-screw, move the pointer to the proper temperature mark on the dial, and then tighten the set-screw.

Quick Removal (*a feature introduced about a year ago*) Should the "B" Type AutomatiCook become damaged for any reason, necessitating replacement, it can be removed without disconnecting the range or disturbing the linings or the piping. Requires no mechanical servicing or repairs on the job. Simply loosen one bolt, replace the Thermostat with a spare and tighten the bolt. The job can be done in less than a minute's time.

Non Clog By-Pass Pilot (*Successfully used for more than a year*) Will not clog nor bind. Always moves freely and maintains its adjustment. Eliminates servicing, adjusted by turning either to the right or left.

Another Improvement. The AutomatiCook is now being equipped with a Raised Non-Corrosive Valve Seat which will resist the corrosive action of gas, eliminating any possible trouble from this source.

Gas ranges will soon be coming through to you with AutomatiCooks having all these advantages!

LEARN THE DETAILS IN ADVANCE
WRITE FOR COMPLETE INFORMATION

If you will also send us the names of all employes handling, selling or installing Gas Ranges, we will be pleased to send them descriptive literature covering these features.

ROBERTSHAW THERMOSTAT CO.

Youngwood, Penna.

Changes in Ownership

The Moody-Seagraves interests of Houston, Texas, have purchased all the natural gas holdings in the southwest of E. L. Phillips. It includes controlling interests in the Houston Gas & Fuel Company, the Houston Gulf Gas Company, the Southern Gas Company, the Southern Gas Utilities Company, and the Western Gas & Fuel Company. The deal involves something like twenty-one million dollars.

Increased Rates Approved

The Public Service Commission has approved increased rates for gas by the Tri-County Natural Gas Company and the Caledonia Natural Gas Company, serving Caledonia, Scottsville and the towns of Caledonia, Leroy and Wheatsville, effective July 1.

The Commission after investigation finds that the companies must receive more revenue if they are to continue to furnish satisfactory service, and the new rates permitted do not appear to give return in an amount which will be excessive. The new rates are $2 net for the first 200 cubic feet, 13 cents a hundred for the next 4,800 cubic feet and 11 cents a hundred and over 5,000 cubic feet a month.

Seeks Increase in Capital Stock Issue

A certificate has been filed in the office of the Secretary of State increasing the capital stock issue of New York and Richmond Gas Company from $3,000,000 consisting of 30,000 shares $100 par value to $4,500,000 consisting of 45,000 shares of $100 par value.

Some Natural Gas Events in the Rocky Mountain Regions

The natural gas service from Amarillo, Texas, to Denver is proving satisfactory from every angle. The natural gas bills sent out for the first month's use were about the same as they were for the corresponding month of last year (artificial gas), therefore everybody is satisfied. However, the bills should be less when the service is standardized, according to theoretical reasoning based on the B.t.u.

The Colorado Interstate Gas Company have a telephone line following its Amarillo to Denver pipe line, stations and shut-off valves every ten miles, and a trouble department at Colorado Springs. Then there is an automatic attachment that will sound an alarm should the pressure fall to what is considered the "zero" figure. Such supervision will insure top-notch service.

A pipe line is being built from the gas well of the Five Square Oil & Gas Company, located at Berthoud, Colorado, to the city of Loveland, the gas to be used for industrial purposes. The distance between the cities is six miles.

Guy B. Hope, A. C. Slater and A. L. Campbell have incorporated the Durango Natural Gas Company, capitalized at $200,000. The Hope Engineering & Supply Company have been granted a twenty-five-year franchise to serve the City of Durango, Colorado, with natural gas.

After months of silence the agitation for piping the natural gas from the Baxter Basin gas field of Wyoming to the city of Salt Lake City has been started and now the gossipers have it that L. B. Denning, president of the Lone Star Gas Company, and John McFayden, bice-president of Ohio Oil Company, have asked the city to grant them a franchise and they will do the rest. This pipe line would be about 230 miles long. Several cities between would be glad to use the gas. Just as this Salt Lake City venture was heralded, the Prairie Oil & Gas Company brought in a gas well in the Baxter Basin field, making 10 million cubic feet of gas. This field has long been known as a gas land with a quasi-unlimited amount of natural gas.

Diesel Engine Course Planned

Brooklyn Polytechnic Institute announces that there will be an evening course under the department of mechanical engineering on the subject of Diesel and oil engines, conducted during the fall of the present year. Enrollment may be arranged after September 1. In view of the large increase in the use of Diesel engines in public-utility business, it may be that some of the representatives of the manufactured-gas industry will be interested in this special course. The presentation will include a series of lectures, supplemented by class-room work and laboratory instruction.

Creosote Oil Consumption in the United States

Increasing amounts of coal tar creosote are consumed annually in the United States, and despite an expanded domestic production, it is being imported from other producing countries. In 1927 the domestic production was reported to be 76,395,325 gallons with a value of $9,847,932, an increase over the 1926 output, when 75,495,540 gallons valued at $9,767,537 were produced. Imports in 1927 totaled 95,915,221 gallons with a value of $15,381,494, an increase of almost 10 per cent over the 1926 imports, when 87,518,544 gallons were entered for consumption, valued at $11,720,397. In the table given below will be seen imports of creosote oil during the first quarter of 1928.

Gas Refrigerators Attract Visitors to Blue Star Home

At the exhibit of the Blue Star Model Home, sponsored by the Citizens Gas Company of Indianapolis, Ind., large crows are being attracted to the display of Electrolux Refrigerators, apparently intrigued by the idea of ice from gas heat.

This home, which is a permanent exhibit, is different from the usual one in that it is installed in the company's own display rooms at 48 Monument Circle. It was designed and its construction supervised by Wallace O. Lee, director of public relations, and Mrs. J. R. Farrell, director of the home service department.

New York University School for Industrial Gas Salesmen

The fourth school for industrial gas salesmen offered by the Industrial Gas Section's Committee on Education of Gas Company Personnel will be held at the School of Commerce, New York University, New York, N. Y., September 5 to 19. The course will be under the general direction of Elmer E. Ferris, Professor of Salesmanship at the university.

The course this year is by far the best that has ever been offered, according to J. P. Leinroth, chairman of the Committee on Education of Personnel.

As outlined, the course will stress the sales and economic phases of the industrial gas problem. Those in charge of the course feel that the technical work is being cared for adequately by the course offered each year at the University of Illinois, M. I. T., etc.

The work at New York University will be carried on largely by members of the university faculty. University instruction methods will be used throughout, and definite assignments will be given as well as a grade at the end. Dormitory facilities will be offered at the university.

Among the subjects to be handled are the following:

Complete course in salesmanship, report writing, sales correspondence, es-

KNOWN FACTORS IN METER VALUE

In the Light of Experience

Ninety-two years ago the first of the present system of American Meter Company factories laid the foundation upon which was destined to be built an enviable record of service to the gas industry.

Judged by the modern output of American Meter Company factories, the early product was crude by comparison. Judged by responsibility toward the field served and high integrity of purpose, the ideals back of the business were similar.

Long experience has built into American Meters those pioneer and tested improvements so necessary to meet varying requirements with unfailing performance.

Today there is an American Meter for every need and purpose; each the direct outcome of long experience.

Known factors in meter value assure performance and accuracy.

The Growth of American Meter Manufactories

*****

New York
1836

Philadelphia
1848

Albany
1855

Boston
1860

Baltimore
1866

Erie
1888

Chicago
1896

San Francisco and Los Angeles
1901

Kansas City

AMERICAN METER COMPANY

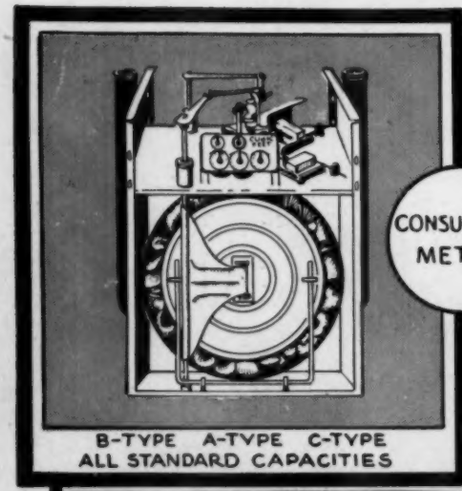
Incorporated

Established 1836

The World's Largest Manufacturers of Gas Meters and Allied Apparatus

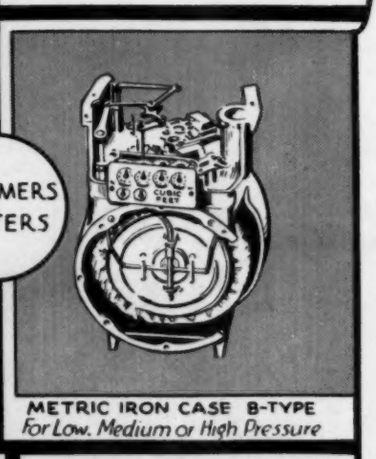
Known Factors

The Combined Skill, Experience, Resources and Facilities of Nine Factories Devoted Exclusively to the Manufacture of Gas Meters and Allied Apparatus

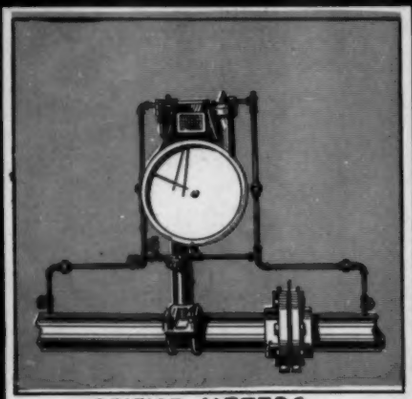


B-TYPE A-TYPE C-TYPE
ALL STANDARD CAPACITIES

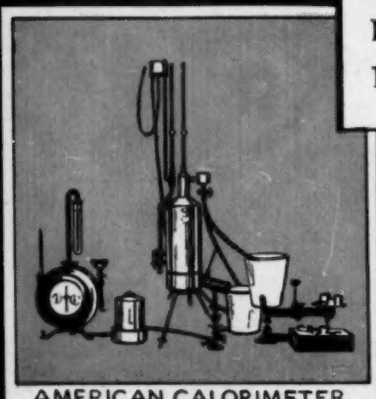
CONSUMERS METERS



METRIC IRON CASE B-TYPE
For Low, Medium or High Pressure



ORIFICE METERS



AMERICAN CALORIMETER
AND OTHER APPARATUS
RECOGNIZED AS STANDARD

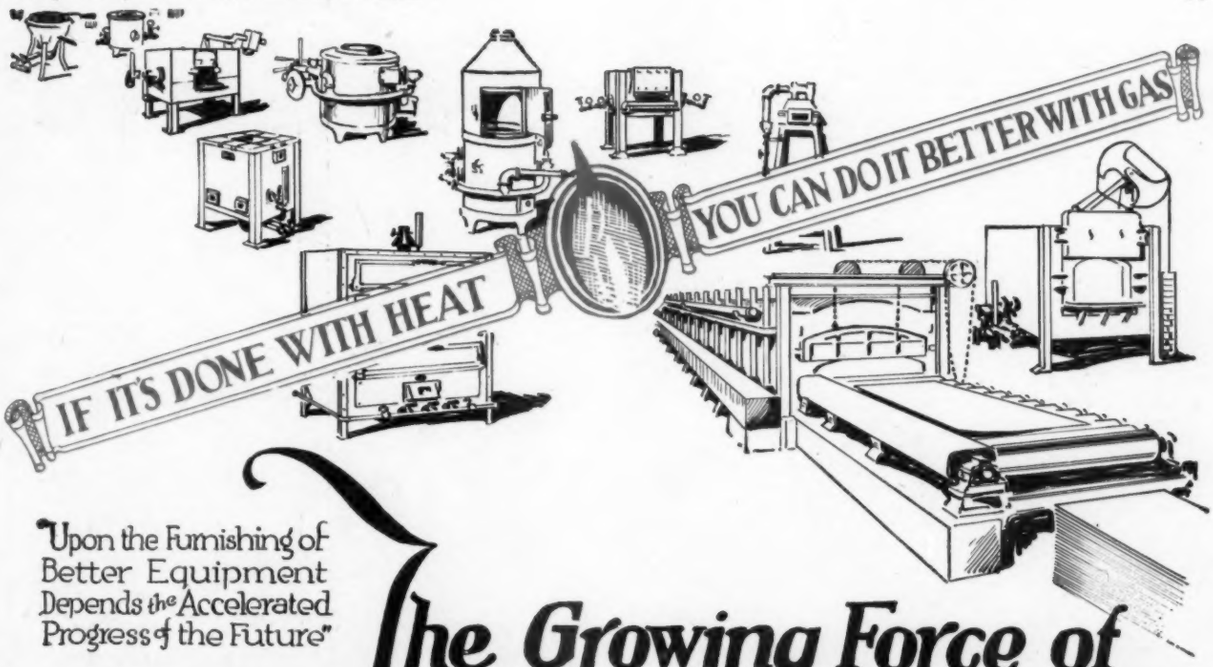
AMERICAN METER CO
MEASUREMENT ENGINEERS
CUBIC FEET

AMERICAN METER COMPANY
NEW YORK
AMERICAN METER COMPANY
CHICAGO
HELME & McILHENNY
JOHN J. GRIFFIN & COMPANY
MARYLAND METER WORKS
D. McDONALD & COMPANY
METRIC METAL WORKS
PACIFIC METER WORKS
NATHANIEL TUFTS
METER WORKS

The Products of American Meter Company Factories are Adapted to Requirements

A COMPLETE LINE OF QUALITY GAS METERS TO MEASURE GAS IN ANY QUANTITY EACH A KNOWN FACTOR IN METER VALUE

American Meters embody the many patented and exclusive characteristics that prolong life and accuracy over the years and that contribute to true economy in meter investment



"Upon the Furnishing of Better Equipment Depends the Accelerated Progress of the Future"

The Growing Force of Magnet Reminders

The greater and more varied use of gas indicates the measure of consumer confidence in all that makes possible today a more convenient and effective realization of gas as a fuel.

The safeguarding of this confidence and the assurance of far greater growth rest largely with production, distribution and gas utilization equipment.

Gas meters hold key importance in this equipment. They are the final arbiters of Gas Company operations. Their quality, accuracy and adequacy are equally important in the economic fulfillment of consumer demand and in the maintenance of consumer confidence.

This confidence, once created and assiduously maintained, gives growing force to magnet reminders that attract a greater and more varied use of gas.

John J. Griffin & Co. quality A type and B type meters afford a capacity range from 150 to 3400 cubic feet per hour. Growing capacity demand can, therefore, be adequately provided for by the meter which best suits the requirements. Our meters consistently embody all the refinements and improvements that are Known Factors in Meter Value.

CONSUMERS' GAS METERS
Tinned Steel Case

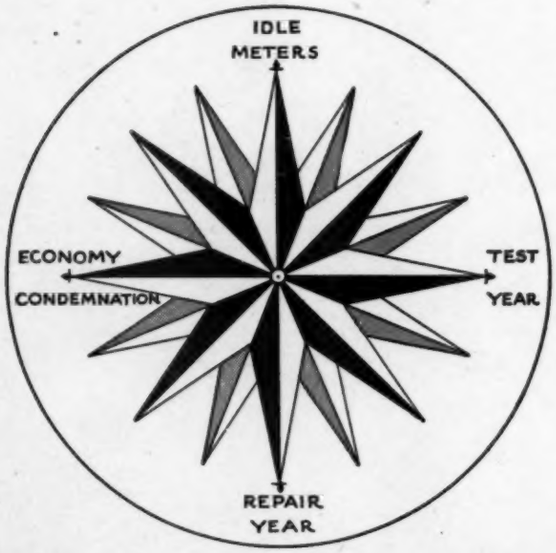
Model	Model
5—175A	5—150B
10—375A	10—300B
30—875A	20—450B
60—1500A	30—600B
150—3400A	60—1300B
	100—1800B

THE MODEL NUMBER DENOTES (1) LIGHT, (2) CAPACITY CU. FT. PER HR. ½ IN. LOSS, (3) TYPE OF METER.

John J. Griffin & Company

Specialists in Gas Meters and Allied Apparatus for Customer Requirements

1513 Race Street, Philadelphia, Pa.
Established 1859



The Four Cardinal Points—
a compass to true economy

68 Years in Boston Manufacturing the Glover Type Meter

It is sound practice to judge a gas meter in the light of all the known factors that determine its value.

The Four Cardinal Points—though a tried system of effective meter maintenance—may be judged on the same basis.

It was evolved from the Known Factors in the Use and Care of Consumers' Meters. These are briefly as follows:

(a) An original four-year survey after the Great War of the meter repair shops of New England.

(b) A compilation and record of the prover test figures of all meters brought in from service and before repairs.

(c) A study and analysis of these figures, which included segregation of the meters under the heads of size and age.

The Four Cardinal Points are a compass to true economy because they guide the way to effective meter maintenance and larger returns on meter investment.

We will gladly mail a copy of this survey, stressing the Four Cardinal Points, to interested Gas Companies.

NATHANIEL TUFTS METER WORKS

BOSTON

ESTABLISHED 1860

Specialists in Gas Meters and Allied Apparatus for New England Requirements.

sentials of advertising, three or four lectures on factory economics, including production systems, types of industrial organization, cost accounting, factory compensation systems, etc. Sessions on industrial heating requirements, market analysis, and gas in relation to competitive fuels will be carried on by leaders in the industrial gas field.

This sales course has been one of the most popular and valuable offered to men engaged in the industrial end of the business. This year by placing it under the actual direction of New York University it is hoped that the benefits will be of even more value than heretofore.

The Committee on Education of Personnel consists of:

J. P. Leinroth, chairman, Public Service Electric & Gas Co., Newark, N. J.; A. J. Peters, vice-chairman, Consolidated Gas Co. of New York, New York, N. Y.; Karl Emmerling, East Ohio Gas Co., Cleveland, Ohio; A. D. Fredendall, the Peoples Gas Light & Coke Co., Chicago, Ill.; W. M. Hepburn, Surface Combustion Co., Toledo, Ohio; G. J. Kollock, Georgia Power Co., Atlanta, Ga.; J. J. Winn, Fall River Gas Co., Fall River, Mass.

Personals

Frank T. Singleton, Martinsville, Ind., has been reappointed by Governor Ed Jackson of Indiana to another four-year term as a member of the Indiana Public Service Commission, beginning July 1. Mr. Singleton is expected to retain for the time being his post as chairman of the commission, in which capacity he has served in the last year.

In making the announcement the Governor commended the work of the commission. "I feel," he said, "that the commission as it is now constituted has the confidence of the general public more than at any recent time in the state's history."

Mr. Singleton first was appointed July 1, 1924, by Emmett F. Branch, then Governor, and Mr. Branch was one of the many who recommended his retention.

Frederick B. Tracy, divisional manager at Muncie, Ind., for the Central Indiana Gas Company, has been appointed general manager of the Jackson County Light, Heat and Power Company at Independence, Mo. Mr. Tracy assumed his duties July 1 with the new connection which is owned by the Metropolitan Gas and Electric Company of Chicago. He will be succeeded by Frank W. Budd, who now is auditor for the Central Indiana Company.

Mr. Tracy went to Muncie in 1911 from Little Rock, Ark., where he was in charge of the office of the Little Rock Gas Company. He first served as auditor and the managership appointment followed several years later.

In 1912 Mr. Budd accepted his first position with the Central Indiana Company for a two-year period. He then went to Columbus, Ohio, for a year with the Columbus Gas Company, after which he was associated with the Spokane Gas and Fuel Company at Spokane, Wash. He returned to Muncie in 1918 as assistant engineer, and six years later became auditor. He ended the first of this year a two-year term as presiding officer of the city council of Muncie, of which body he has been a member for seven years. He is vice-president of the city planning commission.

Arthur B. Ayres, utility magnate of Newcastle, Ind., operating gas and telephone companies, has left for New York City, where he sailed on board the Berengaria for Europe, to remain for several weeks. He says this is the first vacation he ever has had. He will return the latter part of September.

Elmer E. Clay, for several years manager of the Columbus Gas Company, Columbus, Ind., and during the last fifteen months supervisor of eighteen gas properties of the Great Lakes Utilities Corporation, has resigned his position as of July 1.

Guy B. Hopkins, chief accountant of the Public Service Company of Colorado, Denver, has been appointed manager of the securities office of Henry L. Doherty & Company, Salt Lake City, Utah. He will be succeeded at Denver by W. D. Virtue, former district chief clerk.

Mr. Hopkins joined the Public Service Company as a student engineer about twelve years ago, after his graduation from the University of Illinois, and his advancement has been steady. He was the guest of honor at a banquet given by his colleagues on the eve of his departure, a gold watch and chain being presented him as a token of appreciation.

Frederick S. Whittaker has been elected treasurer of the Philadelphia Gas Works Company, according to an announcement made by Paul Thompson, president. Mr. Whittaker, who had been assistant treasurer of the company, succeeds the late William H. Marshall, who died on June 11.

Mr. Whittaker's entire business career, covering a period of thirty-seven years, has been with the United Gas Improvement Company, of which the Philadelphia Gas Company is a subsidiary, or associated companies. He started as a clerk in the engineering department of U. G. I. in 1891, after having completed a five-year preparatory collegiate course at Germantown Academy. In 1895 he was promoted to assistant cost accountant and three years later was made special accountant. Later he was chosen assistant comptroller of the Philadelphia Gas Works Company, and in January, 1928, he became assistant treasurer of the Philadelphia Gas Works Company. He is vice-president of the United Savings and Beneficial Association, a U. G. I. employees' organization, and treasurer of the U. G. I. Beneficial Association.

George E. Whitwell, manager of sales and service of the Philadelphia Company, Pittsburgh, Pa., has been appointed a member of the A. G. A. Testing Laboratory Managing Committee, according to official announcement by Oscar H. Fogg, president of the American Gas Association.

The industry should regard Mr. Whitwell's appointment as one of the most important made in the history of the laboratory, Col. Fogg said.

"Special emphasis should be attached to the fact that Mr. Whitwell is an outstanding commercial man who has also had extensive experience in the utilization end of the gas business," Mr. Fogg continued. "His activities have included both the manufactured and natural gas fields, and the experience he brings to the councils of the Laboratory Managing Committee will be broad and valuable."

Mr. Whitwell was formerly engineer of utilization for the Tacoma Gas and Fuel Company, Tacoma, Wash., and later had general supervision of the gas properties of the H. N. Byllesby Company. He also had sales supervisory experience at Tacoma, and with Byllesby. He now is general sales manager in Pittsburgh.

Obituary

John A. Tompkins Dies

More than half a century of continuous service with the Laclede Gas Light Company of St. Louis was the record of John A. Tompkins, 75 years old, who died July 2, after a short illness. Mr. Tompkins began as a clerk at Station B in 1873. He was transferred to the downtown office in 1900 when the Laclede Gas Light Company and the St. Louis Gas Company were consolidated. Mr. Tompkins refused a pension by the company, preferring to continue with his duties in the customers' accounting department. He became ill at the office just three days prior to his death.

George M. Kirchmer

The gas industry lost an active worker and sincere friend in the death of George M. Kirchmer, for fifteen years general claim agent of the Brooklyn Union Gas Company. Mr. Kirchmer, who long was identified with the work of the publicity and advertising section of the American Gas Association, passed away on Saturday, July 28, at his summer home in Massapequa, L. I. He had been ill for about a month and was believed on the road to recovery when death occurred.

George M. Kirchmer

Born in New York City fifty-eight years ago, Mr. Kirchmer entered the newspaper business in his teens. He served as a reporter on several of the Brooklyn papers and built up a reputation by his expert handling of a number of important stories. He later joined the staff of the New York World and for a time served as night city editor in its Brooklyn office, in the days when the World published a daily Brooklyn edition.

Mr. Kirchmer left the newspaper business to become secretary to former Deputy Police Commissioner Arthur J. O'Keefe. At the end of Mr. O'Keefe's term of office, Mr. Kirchmer was appointed claim agent for the Coney Island and Brooklyn Railroad Company, in which capacity he served for seven years, when he joined the staff of the Brooklyn Union Gas Company.

Besides his work as claim agent for the latter company, Mr. Kirchmer devoted considerable time to the advertising and publicity activities of his organization. He developed a series of illustrated advertisements which won high praise throughout the gas industry and which were frequently reproduced by trade journals.

During his long career in Brooklyn, Mr. Kirchmer was a popular figure in civic life. He was widely known as an after dinner speaker. His wit and general good humor had made him an unusually popular figure with the many organizations throughout the territory served by his company.

Mr. Kirchmer was an active member of the Brooklyn Chamber of Commerce and just a few weeks before his death he served as chairman of its Clean-up Week Campaign. His numerous radio talks added much to the effectiveness of that campaign.

Last year Mr. Kirchmer was elected to the executive committee of The Self-Insurers Association of the State of New York. He had been a member of the association for many years and for ten years had served on its board of managers. He was one of the founders of The Anvil Chorus and was a member of numerous other organizations.

Funeral services, attended by all the officials of the Brooklyn Union Gas Company and a host of other friends, were held Monday night, July 30, in Mr. Kirchmer's home at Massapequa. Interment was on the following day at Sauquoit, New York.

Trade News and Construction

Visit Humphrey Company in Plane

In order to discuss business with Mr. F. A. Lemke, of the Humphrey Company, Mr. H. W. Thornburg, manager of the Central Indiana Gas Company, Anderson, Ind., and Mr. Charles Coffin, president of the Coffin Advertising Agency, Anderson, Ind., flew to Kalamazoo on Wednesday, July 18. The distance from Anderson is 200 miles, approximately, and they made it in 97 minutes.

This was a combination of convenience and pleasure trip to talk business. It created quite a bit of local comment, because, while airplanes and air trips have become fairly common, this is the first instance of an intentional business trip to Kalamazoo with no outside publicity considerations tied in.

The ease, pleasure and lack of difficulty in the trip was very noticeable. The landing and take-off were both no more eventful than getting in and out of a buggy behind the old reliable Dobbin.

Charles Coffin and H. M. Thornburg "Lindbergh" to Kalamazoo

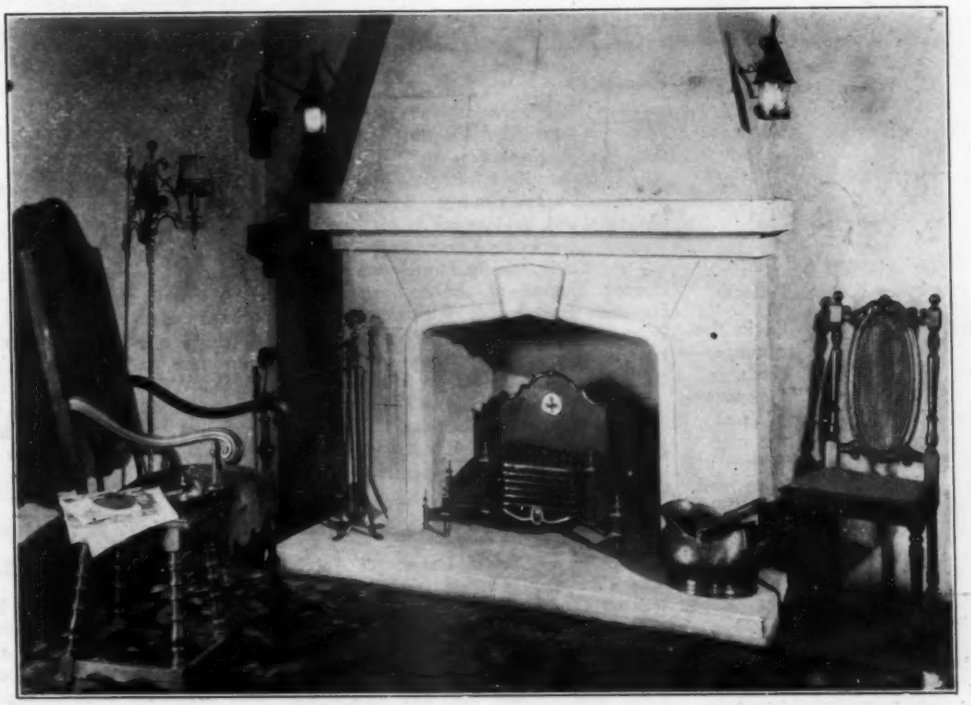
Gas Machinery Co. to Erect Purifier Boxes At Knoxville—Other Construction Activities

The Knoxville, Tenn., Gas Company has placed an order for three 20 ft. by 25 ft. by 12 ft. high steel purifier boxes with cover hoist, 16-inch bypasses and valves.

Also one 4 ft. by 50 ft. naphthalene scrubber and wash box with bypass, for removing the naphthalene from the gas.

This equipment is being installed as further additions to the new water gas plant which the Gas Machinery Company installed in 1927, to enable the Gas Company to maintain the quality of service which their increased load has demanded.

The Central Hudson Gas & Electric Corporation, Poughkeepsie, N. Y., has placed an order for reconstructing their water gas set, furnishing a new turbo blower, new blast piping, a 5 ft. diameter by 40 ft. high cooling scrubber, nine



Note how appropriately this Homestead Coalfire harmonizes with the surroundings.

The *Women* Decide!

The progressive housewife is usually the house-furnisher. For example: she is invariably the one who has the final word on what is, or what is not, to occupy the space in the fire place.

To the housewife then, you must make your appeal when any problem arises involving the decoration of the hearth and home.

Every woman who has seen the Homestead Woodfire or Coalfire, has been impressed by their beauty and appropriateness.

In addition, when they realize that they can have clean, odorless, radiant heat, with no other trouble than striking a match and turning a gas cock, the sale is easily made.

Boost your Fall heating sales *Now*, with Homestead Fires.

HOMESTEAD HEATER COMPANY, Inc.

Selvage Street and Fabyan Place **WALTER KENNEDY, PRESIDENT** **Newark, N. J., U. S. A.**

stands of Gas Machinery Company cooling coils 26 pipes high, new exhauster, new welded steel gas connections with Van Stone joints.

Work is being rushed on this order, and will be completed before the company encounters its heavy fall load.

The Wisconsin Public Service Company, Marinette, Wis., has contracted for the installation of three benches of full depth through sixes, new retort house, coal and coke handling equipment, and auxiliary equipment.

Form New Sales Company for Distribution of Pittsburg Water Heaters

Having been actively engaged in the water heater business since its conception 31 years ago, Mr. E. A. Krah, Jr., and Mr. C. A. Detweiler, both executives of the Pittsburg Water Heater Company, are now operating the Pittsburg Water Heater Sales Company at 110 Jenkins Arcade, Pittsburgh, as well as retaining their executive positions with the company.

Mr. Krah, superintendent and industrial sales engineer, still retains his place on the board of the company and will act in an advisory capacity on all engineering problems. In 1897, Mr. Krah started to work with the Old Monarch Water Heater Company, which was later absorbed by the Pittsburg Water Heater Company. In his 31 years' experience, he has worked in every department of the organization. He is looked upon as an authority on water heating.

In 1898, Mr. C. A. Detweiler was one of the three men engaged by the Ruud Manufacturing Company that made up, at that time, their entire sales personnel and was with that company ten years, and in 1908 joined forces with the Pittsburg Water Heater Company, organized at that time, and has been actively engaged since that time as their secretary and sales manager. He will continue as an executive of the Pittsburg Water Heater Company as well as its secretary and member of its board of directors.

The Pittsburg Water Heater Sales Company takes charge of the Pittsburgh territory and eight surrounding counties July 1. The entire city sales organization will remain intact under the new management.

The Pittsburg Water Heater Company has recently added a gas fired house-heating boiler to their line of water heaters.

Distributors Appointed for Gas Refrigerators

H. W. Foulds, general sales manager Servel Sales, Inc., announces the appointment of several new distributers for Electrolux and Servel Refrigerators, among them being W. T. Gudgel and C. O. Rainey, who recently formed the Enco Products, Inc., 693 Main street, Buffalo, N. Y. Enco Products has opened a handsome display room and will serve the Queen City and its environs.

Iceless Refrigeration, Inc., is the name of the separate organization formed by the Petro Nassau Corp., Lynbrook, N. Y., to handle Electrolux and Servel boxes in Nassau County. The new corporation will be located at 150 Sunrise highway, Rockville Center, L. I., N. Y. To the distributors in Pennsylvania, Mr. Foulds announced, have been added Hansom Battery & Electric Service, Warren, Pa., and Edward J. Baker, Punxsutawney, Pa. Two other new dealers are the Anderson Electric Co., at Manitowoc, Wis., and Keskamp & Klenke, Spearville, Kansas.

Tucker to Represent Cleveland Gas Burner & Appliance Co. in Southwest

The Cleveland Gas Burner & Appliance Company, manufacturers of Barber Patented Jet Gas Burners, announces the appointment of John P. Tucker as their southwestern representative.

He will contact the gas companies and the plumbing and heating trade in the States of Texas, Oklahoma, Arkansas, Louisiana, Eastern Mississippi, and Eastern Tennessee.

As Mr. Tucker resides in Fort Worth, Texas, his home is practically located in the very heart of this vast territory.

Mr. Tucker is a graduate of the A. & M. College of Texas. He has been in the gas business for a number of years, serving with the Fort Worth Gas Company, the Lone Star Gas Company, and the Dallas Gas Company respectively. He takes up his new position well equipped to successfully handle every phase of it.

American Schaeffer & Budenberg Corp. Sold to Manning, Maxwell & Moore, Inc.

Manning, Maxwell & Moore, Inc., has purchased the entire manufacturing and selling business of the American Schaeffer & Budenberg Corporation, including good-will, trade names, trademarks, patents, etc.

In the future the American Schaeffer & Budenberg Corporation business will be conducted by the Consolidated Ashcroft Hancock Company, Inc., an operating company owned exclusively by Manning, Maxwell & Moore, Inc., which has handled the manufacture and sales of its steam specialties business for many years past.

It is the intention of Manning, Maxwell & Moore, Inc., to pursue a liberal and constructive policy in research and development, particularly in connection with indicating and recording industrial instruments, which, in the past, have formed such an important part of American Schaeffer & Budenberg Corporation's success.

Beebe Returns to Koppers' Pittsburgh Office

Announcement has been made by the Koppers Company of Pittsburgh, Pa., of which the Western Gas Construction Company is a subsidiary, that Mr. F. H. Beebe is returning to Pittsburgh to assume new duties in the main office. Mr. W. L. Williams, Jr., formerly purchasing agent of the Koppers Construction Company, will take Mr. Beebe's place as vice-president in charge of the company.

To Manage Pittsburgh Sales Office

Effective July 1, 1928, E. A. Krah, Jr., and C. A. Detweiler, long associated with the Pittsburg Water Heater Company in various executive positions, took over the active sales management of the Pittsburg City Sales Office, 110 Jenkins Arcade, Pittsburgh, Pa., of this company.

Whitelaw Named Chairman of A. G. A. Manufacturers' Section

The nominating committee of the Manufacturers' Section of the American Gas Association have named H. Leigh Whitelaw, of the American Gas Products Corporation, N. Y., as chairman for the year 1928-29, and F. G. Curfman, of the Improved Equipment Company, New York, N. Y., as vice-chairman.

Renkin to Manage Industrial Furnace Department

Combustion Engineering Corporation, 200 Madison avenue, New York City, announces the appointment of W. O. Renkin as manager of the Industrial Furnace Department, effective August 1.

Mr. Renkin is well-known in the iron and steel industry, particularly as a pioneer in the application of pulverized fuel to metallurgical and industrial furnaces. Mr. Rankin has devoted the past fifteen years to this particular field of engineering and brings a wealth of practical experience to his new position.

Why Brother, Would You Know Perfection in Freight Elevators?

If so, let us send you some plants near by you, or give you a list of those who every day

Hurrah for Ridgway

When you put in the Ridgway Elevator you are done "fooling" with the Elevator proposition forever.

The Elevator **Costs Nothing to Run.**

The Elevator **Has No Counterweights.**

The Elevator **Has No Repairs.**

The Elevator **Is Fool Proof.**

The Elevator **Goes At Any Speed.**

The Elevator **Is Noiseless.**

No Pay Until It Makes Good.

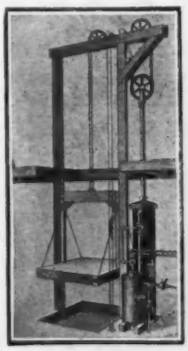
These are half a dozen of the many reasons why the Biggest and Best Plants all over the world

"HOOK 'ER TO THE BILER"

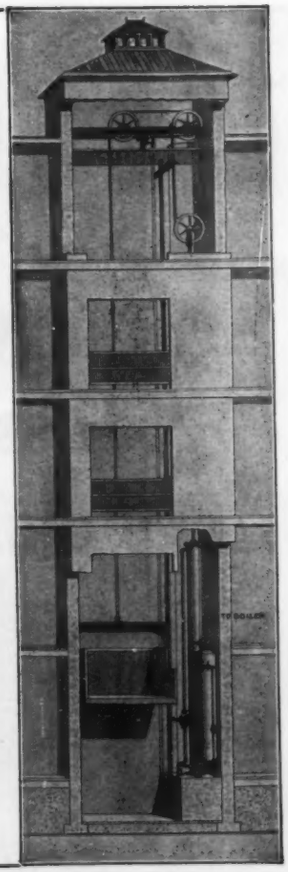
CRAIG RIDGWAY & SON CO.

Over **3,000** *in daily use.* COATESVILLE, PA.

Direct Acting

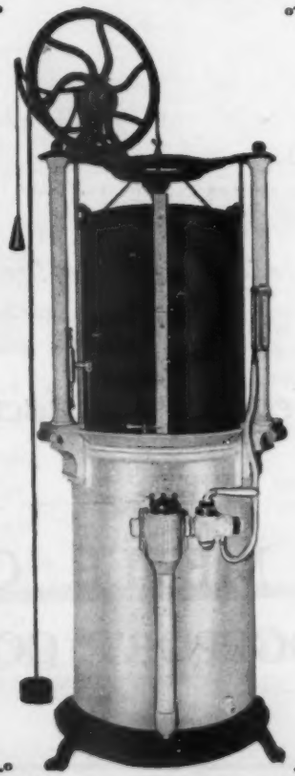


Double Geared



SUPERIOR

Gas Meters
Provers
Service
Cleaners
Diaphragms



SUPERIOR METER CO.
167 - 41st Street
Brooklyn, N. Y.

Mass Production Permits

Quantity Price Reduction

Effective July 1st to December 31st, 1928

on

No. 1 SPRAGUE SERVICE REGULATORS

with

Sprague Special Diaphragms
Sprague Special Valve Cap Leathers
Nickel Silver Parts
Connections: 3/4" or 1" by 3/4", 1" or 1 1/4"
Orifices: 3/16", 5/16", 3/8", or 1/2"
Special Weights for Special Jobs.
Correctly machined for absolutely interchangeable parts.

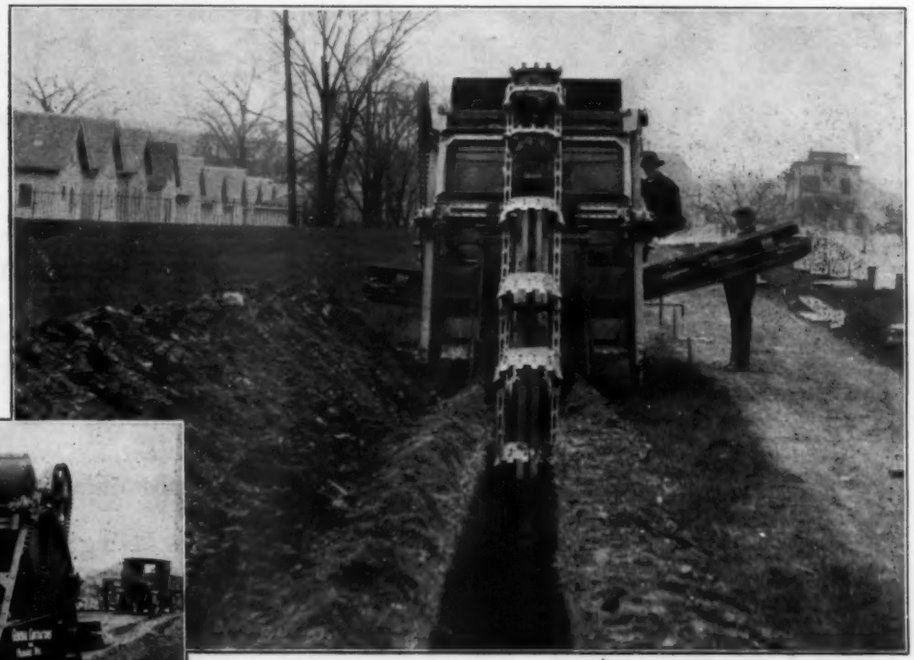
Nineteen Years of Satisfactory Service

WRITE US

SPRAGUE METER COMPANY

BRIDGEPORT, CONN.

Digging 5 Lineal Feet *per* minute *in* Hard Clay Soil with an "AUSTIN Little Wonder" Public Service Ditcher



MODEL NO. 100 DIGS 16 TO 30 INCHES WIDE AND DOWN TO 8 FEET DEEP.
MODEL NO. 105 DIGS 16 TO 30 INCHES WIDE AND DOWN TO 10 FEET DEEP.
DIGGING SPEED 12 TO 100 INCHES PER MINUTE.
ROAD TRACTION SPEEDS—1¼ AND 1½ MILES PER HOUR.
TWO EXCAVATOR BUCKET SPEEDS AND TWO CONVEYOR SPEEDS.

Five lineal feet a minute, 22 inches wide and 4 feet deep —that is 2400 lineal feet in 8 hours.

General Contractors, Inc., of Milwaukee, Wisconsin, completed the trench for 1500 lineal feet of water pipe in 6 hours, without effort. And a good part of the digging was up grade. Good performance in clay digging—an Austin "Little Wonder" Ditcher will do the same for you.

Investigate the many practical time- and labor-saving features of this Austin. Descriptive folder sent on request.

AUSTIN MACHINERY CORPORATION
MUSKEGON, MICHIGAN

SALES OFFICES

NEW YORK, N. Y., 30 CHURCH ST. CLEVELAND, O., 2112 SUPERIOR VIADUCT DETROIT, MICH., 7436 FOURTEENTH ST.
CHICAGO, ILL., 1355 RAILWAY EXCHANGE BLDG. SALT LAKE CITY, 301 NESS BLDG. TORONTO, CAN., 17 WALLER AVE.
ST. LOUIS, MO., 1500 N. BROADWAY DALLAS, TEX., 209½ N. CLINTON ST. LOS ANGELES, CAL., 1947 MATEO ST.
CHATTANOOGA, TENN., 217 FIRST NATL. BANK BLDG.

Save— One Fourth *in* *Laying Costs!*

"ONE-FOURTH less joints"—that means a lot in pipe line construction. It means that you save one-fourth in laying costs all down the line.

You have one-fourth less bell-holes to dig...one-fourth less lead to melt...one-fourth less packing, pouring, and caulking.

You'll admit these are substantial savings.

Then add increased speed laying the line. Your pipe crew handles approximately the same number of pieces of pipe a day. Therefore, with Mono-Cast Iron Pipe—made in 16-foot lengths—your crew will lay a greater footage of pipe a day.

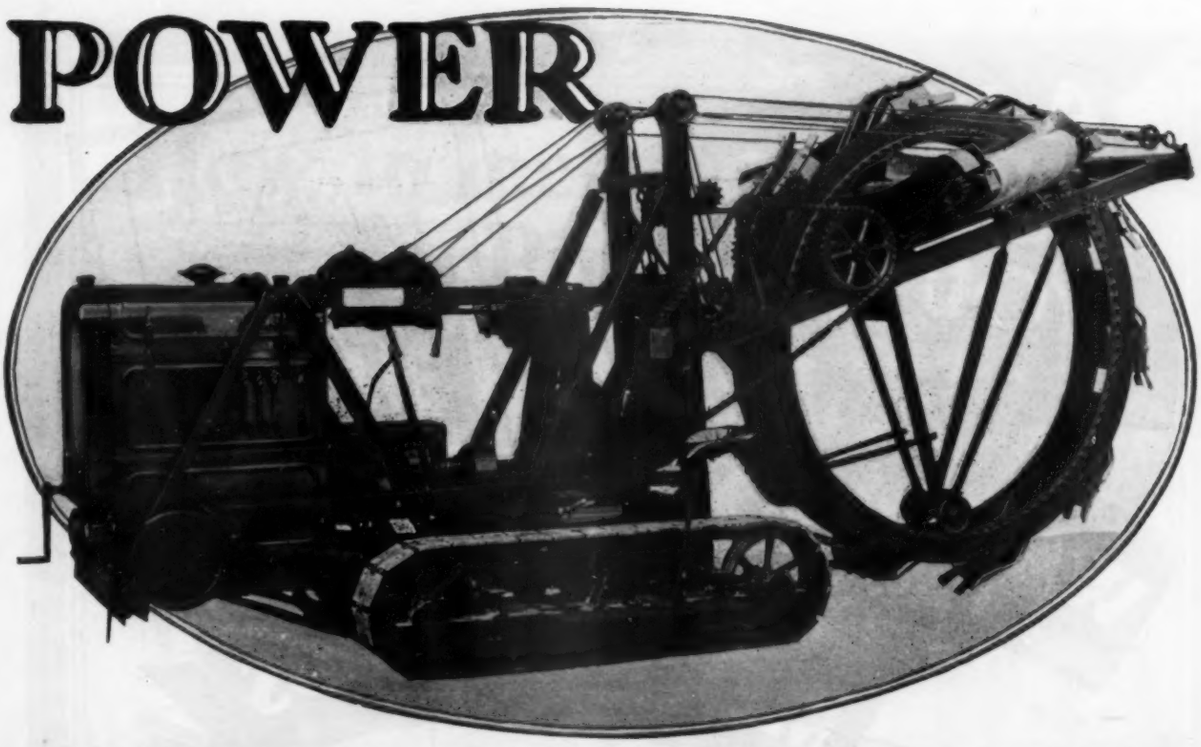
That's why Mono-Cast Pipe saves money all down the line. Since its introduction to pipe buyers, more than 5,500,000 feet have been put into service. Communicate with one of our district offices.

OFFICES

Chicago
Kansas City
Dallas
Los Angeles
San Francisco
Seattle
Minneapolis
New York City

AMERICAN CAST IRON PIPE COMPANY
BIRMINGHAM, ALABAMA
DISTRICT OFFICES IN PRINCIPAL CITIES

POWER



COMPACT—RUGGED—EFFICIENT

Cleveland Baby Diggers Deliver Ample Dependable Power For Gas Trench Work.

Cutting gas trench through soft layer rock in California

The Cleveland Baby Digger is powered with a Hercules Industrial type motor which requires but a fraction of its power to operate the machine, incidentally effecting a considerable fuel saving.

Power is transmitted with maximum efficiency through a type of design and construction that is unparalleled.

Reduction units are encased and run in oil—Chrome-Vanadium steel shafts running in standard roller and ball bearings are used practically throughout—all speed changes are controlled by automotive type transmission—wheel type digging having fewer moving parts and unequalled for cutting hard or stony soil—close coupled all steel frame and a low center of gravity. These are a few of the reasons why Baby Diggers have ample power and do their work without undue effort.

No matter what the conditions, whether the job is to be done in heavy wet clay, adobe, shale, loose rock, or coral rock, Baby Diggers are showing gas companies everywhere new low digging cost.

Digging gas trench through stony soil in New York State

Write today for full information and our Bulletin—"Making Machine Jobs of Hand Labor Jobs."

THE CLEVELAND TRENCHER CO.

"Pioneers of the Small Trencher"

20100 St. Clair Ave. Cleveland, Ohio

THE BABY DIGGER

REGISTERED

A BOOK YOU WILL WANT ABOUT METER RECORDS

THIS book explains the system now being successfully operated at the Erie County Electric Company. It shows how the three records necessary to perfect meter record control have been combined in one master record . . . In fifteen seconds the Meter Department of the Erie County Electric Company can give you practically any information you seek about any of its meters. Is a meter in stock or in service and how long has it been there? When was it last tested and by whom? What kind of current does it use? Who is the customer and how long has he had it? What business is the customer in? Where is the meter located? . . . The explanation of the manner in which all this information can be produced so quickly,

MAIL THE COUPON

the description of the way three records—meter records stock records, and test records have been combined, the story of how economically, how speedily and how practically the Erie County Electric Company has at last gained complete control over its meter record situation, all these things are presented in a readable, interesting manner in this book . . . Every public utility man will want to read this book. Every public utility man should read it, to know how errorless a meter record system can be, to know how the Erie County Electric Company has solved its problems with a record system which makes the lost meter card impossible.

KARDEX

DIVISION OF

Remington Rand Business Service Inc.

Remington Rand Bldg. Buffalo, N. Y.

Remington Rand Business Service Inc., Buffalo, N. Y.

Gentlemen:

You may send me your meter record book. If it will prove the claims you make I shall consider my time well spent.

Name .....

Address .....

Position .....

How to Include McWane Pipe in Specifications & Calls for Bids

A FAIR question, with a simple answer. Write a clause like this:

"All pipe shall be in 12 foot or 16 foot lengths, A.G.A. Standard or Class 150."

McWane Pipe is sold by the foot. You never pay for excess weight in McWane Pipe—you buy the number of feet you need, and pay only for what you get.

McWane Pipe is "moulded in sand inside and outside," thus retaining all the virtues of old-time sand cast pipe. It cuts well, taps well, and ships well.

WRITE FOR ILLUSTRATED LITERATURE

McWANE CAST IRON PIPE CO.
BIRMINGHAM, ALA.

PACIFIC STATES CAST IRON PIPE CO.
PROVO, UTAH

SALES OFFICES IN PRINCIPAL CITIES

McWANE
CAST IRON PIPE

As an Investment

A Haiss Portable Belt Conveyor has a workability which makes it cheapest in the world

Le Roi Engine or Electric Motor mounted above belt
Smooth Machined and Crowned Head Pulley
Ample Take-up at the Head Pulley
Sturdy Steel Wheels with HYATT Roller Bearings for Easy Moving
4-Ply Special Haiss Quality Rubber Belt
High Grade Roller Chain
Guide Rollers Keep Belt Running True
Belt Rollers run on Ball Bearings and Need No Oiling
Lattice Truss Frame Greatest Strength for its weight
Easy Operating RATCHET WINCH for setting Discharge Height
Vibrating Plate Cleans Stray Grit from Return Belt
HYATT Roller Bearings on Tail Pulley
Strong Tubular Frame
Spillage Pan Protects Return Belt and Rollers
Self Cleaning of Spillage

Look at this picture—send for a catalog—and ask us to quote on a ____ft. conveyor

GEORGE HAISS MFG. CO. INC.
Park Ave. and 141st St.
NEW YORK N. Y.

HAISS

Tycos Temperature Instruments
INDICATING - RECORDING - CONTROLLING

FOR YOUR GAS PLANT

Ammonia Still Thermometers
Engraved Stem Thermometers
Flue-Gas Thermometers
Gas Ranges
Gas-Main Thermometers, Straight and Angle Stem
Index Thermometers
Meter-Prover Thermometers
Precision, Engraved Thermometers
Pyrometers
Recording Thermometers
Still-Thermometers
Superheated Steam Thermometers
Temperature and Pressure Regulators
Water Circulation Thermometers
Anemometers
Aneroid Barometers
Base Metal, Rare Metal and Radiation Pyrometers
Electric Contact Thermometers
Fery Radiation Pyrometers
Hand Levels
Hydrometers
Hygrometers
Inclinometers
Mercurial Barometers
Mercurial, Recording and Index Thermometers for all Industrial and Laboratory Applications
Mercury Column Vacuum Pressure and Gauges
Mineral Oil Testing Instruments
Rain Gauges
Recording Barometers
Temperature, Pressure and Time Regulators
Thermographs
Thermometers of all kinds
Surveying Compasses

WRITE FOR
GAS PLANT CATALOG

Taylor Instrument Companies
Rochester, N. Y., U. S. A.

Canadian Plant
Tycos Building
Toronto

Manufacturing Distributors
in Great Britain
Short & Mason, Ltd., London

There's a Tycos or a Taylor Temperature Instrument for Every Purpose

The Advantages of Pittsburgh Seamless Line Pipe Include:

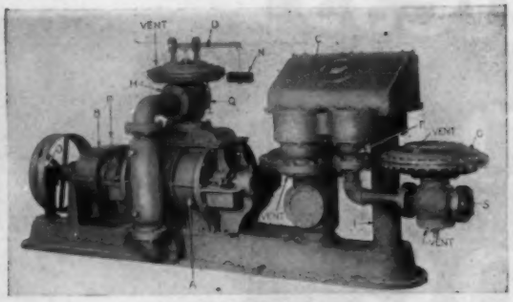
1. **Longer lengths (up to 45 feet).**
2. **Various Carbon Content (.10 to .20; .30 to .40; .40 to .50).**
3. **Thorough, minute inspection.**
4. **Fewer joints---lower installation cost.**
5. **Economy in maintenance of line.**
6. **Finest open hearth steel---less corrosion.**
7. **No welded seams---uniform strength.**

Pittsburgh Seamless Steel Pipe and Tubing are made in all sizes up to 13⅜" O. D., including pipe sizes, and in extra long lengths. The advantages in strength, safety, economy and durability give them a wide range of usefulness in the production, transportation and refining of petroleum and for gas and steam lines.

Pittsburgh Steel Products Co.
DIVISION OF
Pittsburgh Steel Co.

PITTSBURGH · NEW YORK · DETROIT · CHICAGO · HOUSTON · TULSA

The Improved Kemp System



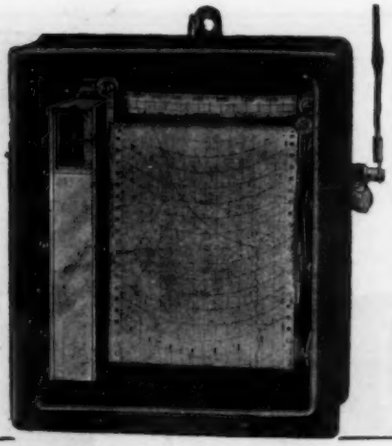
THERE is but one KEMP SYSTEM. There is nothing just as good—no other way to get the results which are had from the KEMP SYSTEM.

The big improvement in conditions and maximum benefits which you desire cannot be had by changing to high pressure, some other type of inspirator or a mixing fitting. It costs but little more to utilize with your operations some of the special applications which are common to the KEMP SYSTEM and are productive of the greatest benefits. The KEMP SYSTEM is the best investment.

Write, phone or telegraph today for a representative

THE C. M. KEMP MFG. CO.

Baltimore, Md.



Bristol's Strip Chart Model Recording Pyrometer—designed to provide a continuous temperature record over 45, 30 or 15 days.

Steer a straight course in Gas Manufacture with

BRISTOL'S

RECORDING PYROMETERS

THE production temperatures in water gas sets must be kept within narrow limits—neither too high or too low. For example, excessive temperatures in the superheater or carburetor result in either a waste of oil and overcondensation, or require an inordinate consumption of fuel for cracking the oil.

Also, where heavy, inexpensive gas oils are used failure to preserve the right temperature results in carbon deposits.

With Bristol's Recording Pyrometers constantly recording the progress of temperatures your operators have only to refer to the instrument occasionally to KNOW just what is taking place inside the apparatus. They are thus able to steer production along the safe and middle course, without any danger of extreme temperatures developing.

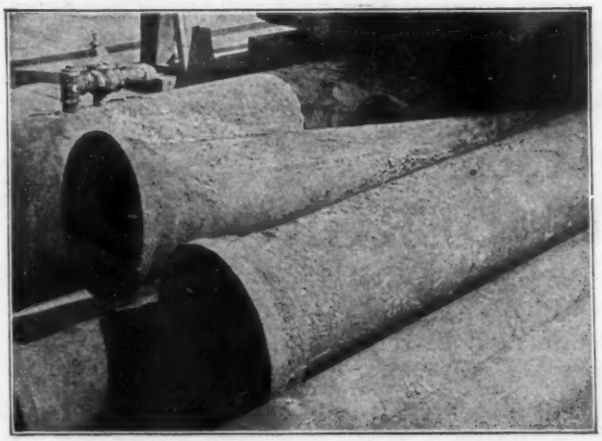
Bristol's Instruments are simply designed for the greatest accuracy, and ruggedly built for the longest service without repairs. Bring your instrument problems to us—perhaps we can suggest a solution. There's no obligation.

The Bristol Company Waterbury, Connecticut

FOR 38 YEARS MAKERS OF BRISTOL'S RECORDING INSTRUMENTS

BRANCH OFFICES

BOSTON, MASS.
NEW YORK, N. Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.
BIRMINGHAM, ALA.
DETROIT, MICH.
CHICAGO, ILL.
ST. LOUIS, MO.
AKRON, OHIO.
DENVER, COLO.
SAN FRANCISCO, CAL.



This pipe was laid in Old New York nearly fifty years ago—

dug up this summer *and relaid* to serve another fifty years *or more!* . . . .

Fifth Avenue and 42nd Street, New York City. The "World's Busiest Corner" as it looked in 1880.

THE cast iron pipe in the photograph was laid in 1880 down the peaceful lane that was Eighth Avenue then. It was dug up in connection with subway construction this summer *and relaid* because of its perfect condition. And it will endure indefinitely. Cast iron pipe in use today has given uninterrupted service for more than *two hundred* years!

There is no case on record in which cast iron pipe has failed under usual service conditions. Once laid, cast iron pipe can be forgotten. Its full span of life literally cannot be estimated. And that's a fact of vital interest to every engineer, every city official, every taxpayer.

There are scores of other facts about cast iron pipe that are valuable to technical men. The Cast Iron Pipe Research Association will send its authoritative data to any inquirer without cost or obligation on the writer's part. Address: Thomas F. Wolfe, Research Engineer, Cast Iron Pipe Research Association, Peoples Gas Bldg., Chicago.

CAST IRON PIPE

ARE YOU INTERESTED
in the protection of
STEEL PIPE LAID UNDERGROUND?

As a result of many years' experience with SEMET-SOLVAY ACID-RESISTING PAINT, during which time 227 barrels were used for similar purposes, one large Public Utility is now using this grade of Semet-Solvay Paint to protect sixty miles of eight-inch diameter STEEL PIPE, laid underground and used as a high-pressure gas main. They know by experience SEMET-SOLVAY ACID-RESISTING PAINT will prevent corrosion. The cost of protection per lineal foot is ridiculously low. It is applied cold using unskilled labor.

For further details, samples, prices, etc., write

SEMET-SOLVAY COMPANY

61 Broadway **New York City**

BAROMETERS

PHILADELPHIA, THE WORKSHOP OF THE WORLD, has 14,000 Manufacturing Establishments of which many have World-Wide Reputations.

"PRINCO" STANDARD FORTIN MERCURIAL BAROMETERS

are in World-Wide use because they, too, have a "World-Wide Reputation"

THEY ARE GOOD BAROMETERS
THEY ARE REASONABLE IN PRICE!

For more than a decade they have been made in such manner that they can be shipped safely and successfully wherever there is a common carrier. This has been recognized as an achievement in Barometry.

PRECISION THERMOMETER & INSTRUMENT COMPANY
1439 BRANDYWINE STREET - - - - - - PHILADELPHIA, PA.

There is no substitute for DEPENDABILITY on jobs like these

DEPENDABLE pipe is desirable at all times, but it is especially important that pipe laid under city streets and suburban roadways should be dependable beyond all theory or chance—it must be dependable in *fact*—proved so by the test of time and character of service over years and years of actual use.

That expensive paving and road surfaces will not be disturbed—that traffic will not be inconvenienced—that costly repair work will not be entailed—means that a tight-jointed, vibration-resisting, shock-absorbing, load-withstanding, corrosion-combating pipe must be used. This means pipe that is exceptionally uniform, that has great strength and sufficient ductility. In short, pipe that promises every necessary quality for long years of underground service.

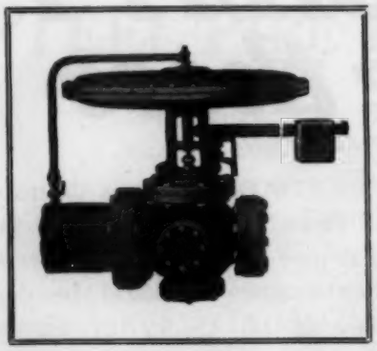
In addition to being a dependable pipe —"NATIONAL" can be furnished in double random lengths—either threads and couplings, plain end for patent couplings or beveled for autogenous welding. And there is a size for every gas line requirement—no matter how small or how large.

Ask for Bulletin No. 26

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

District Sales Offices in The Larger Cities

Efficient Regulation



The Fulton
Low Pressure Regulator

Efficient regulation depends upon the accuracy of the regulation equipment. For 35 years the Chaplin-Fulton Manufacturing Company has made regulating devices for the gas industry. That the aim to make the most accurate and reliable equipment possible has been reflected in the Chaplin-Fulton series of regulators, is evidenced by their popularity and standing with the foremost gas companies.

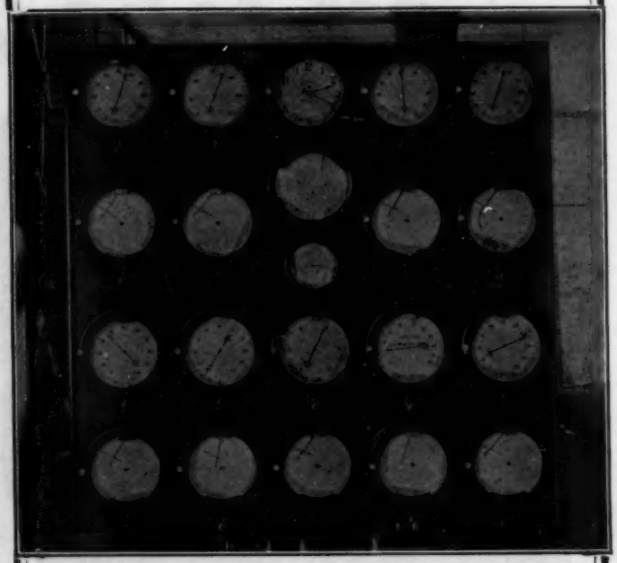
For an investment in efficient regulation, the following Chaplin-Fulton Regulators offer you the most that can be built into devices for these purposes.

High Pressure Regulators
Low Pressure Regulators
House Regulators
Illuminating or Dead Weight House Regulators
House Service Regulators—Spring Style
High Pressure Spring Regulators
Little Hercules High Pressure Regulators
Gas-Fuel Boiler Governors
Gas Relief Valves
Duplex Sensitive Gas Governors
Back or Check Pressure Regulators

Write for information and catalogues.

The Chaplin-Fulton Mfg. Co.

GAUGE BOARDS



American Gas Maker's Gauges, Recording Gauges, Clock and Recording Thermometers in a large New York Gas Plant. Centralized control over critical pressures and temperatures makes for plant efficiency.

Send for our Gas Makers text book "Manufactured Gas" if you haven't received your copy.

Write for the following Catalogs:

Gas Maker's Gauge Catalog P-7
Recording Gauge Catalog E-7
Thermometer Catalog F-7
Recording Thermometer Catalog H-7
Tachometer Catalog J-7
Temperature Controller Catalog R-7

AMERICAN INSTRUMENTS

CONSOLIDATED ASHCROFT HANCOCK CO. INC.
AMERICAN SCHAEFFER & BUDENBERG DIVISION
338 Berry Street Brooklyn, N.Y.

ROBERTS GAS BURNER UNIT

The Gas Burner with a proven record

MANUFACTURED GAS NATURAL GAS MIXED GAS

You desire the House Heating Load.

You can get it by merchandising the Roberts Burner, a safe, efficient and dependable appliance. The low cost eliminates sales resistance when your customer is convinced *Gas is the Fuel.*

Economy

Air-Gas ratio is controlled. All air directed *into the burner.* Radiant heat applied.

Safety

Circuit positively breaks if pilot fails. Valve closes if electricity fails and can be hand operated.

If you are skeptical we can show

that *Roberts Burner Operation* based on cu. ft. consumption / sq. ft. of radiation / degree day *compares favorably* with special *Gas Equipment.* Special attractive prices to Gas Companies.

ROBERTS GAS BURNER CORP.

128 W. CHIPPEWA ST. Tu-8535 BUFFALO, N. Y.

RITER-CONLEY CO.

STEEL CONSTRUCTION

PITTSBURGH

STEEL PLATEWORK

FOR

THE GAS INDUSTRY

Gas Holders
Pressure Tanks
Steel Pipe
Steel Barges
Oil Tanks
Purifiers

BRANCH OFFICES

New York — Boston — Baltimore
Chicago — Philadelphia — Detroit
Cleveland — Cincinnati — Seattle
San Francisco — Los Angeles

Utility and HYTEMPITE

(Reg. U. S. Pat. Off.)

"The Universal High Temperature Cement"

are Synonymous

HYTEMPITE is the ideal high temperature cement for Gas Plants, because it has many uses. HYTEMPITE

—insures quick, economical repairs of Retorts, Jamb Joints Furnace Walls, Arches and Baffles.
—not affected by heating and cooling of ovens.
—can be used with salvaged, crushed old fire brick.
—stands up under severe weather conditions.
—makes thin, strong joint between tile or brick that stands up under extreme abrasive action of clinker tools.
—easily shot into place with Quigley Refractory Gun.

Keep a drum of HYTEMPITE in Retort House or Boiler Room for quick repairs.

Quigley Furnace Specialties Co., Inc
26 Cortlandt St. New York, N. Y.
Stock and Service in every Industrial Center.
"HYTEMPITE" is a Quigley Product.

Don't Guess!

The only criterion of Oxide quality is what it will do in the purifying boxes.

Test Our IRON BORING OXIDE

for Endurance, Activity and Revivability in your own boxes and be convinced of its superiority.

Let Us Help Solve Your Purifying Problems

GAS—PURIFYING MATERIALS CO. INC.

IRON BORING OXIDE

FOOT OF HALSEY STREET LONG ISLAND CITY NEW YORK
BRANCH YARD PROVIDENCE R.I.

LEADING GAS COMPANIES USE LAMBERT METERS

All sizes up to 3,400 cu. ft. capacity

Meters
Diaphragms
Repairs
Provers
Pumps
Calorimeters
Wet Meters
Gauges
Apparatus

LAMBERT METER CO.

BUSH TERM. BLDG. 4, BROOKLYN, N. Y.

YOUR OWN HOME?

Does it know the joy of unlimited turn a faucet hot water service, always ready for any person or purpose?

Do you know the really modest fuel cost of this peerless home convenience, by experience?

If not, let your home be promptly equipped with a supreme value

HUMPHREY

Kalamazoo Automatic Storage Heater

that your own personal enthusiasm based on experience in your own home and family may be passed thru your organization for the benefit of its influence on better understanding and broader selling.

Why Not To-day?

HUMPHREY COMPANY

KALAMAZOO (DIV. OF RUUD MFG. CO.) MICHIGAN

STREET DEPARTMENT SUPPLIES

DEPENDABLE GAS MAIN BAGS
Type A—Seamless
Type B—Reinforced Seams
Type C—Canvas Covered

GOODMAN CYLINDRICAL STOPPER
Inflatable for higher pressures

SOAP TAPE
BRUSHES
PLUGS
JOINT RUNNERS
AIRLINE MASKS

Safety Gas Main Stopper Co.
523 Atlantic Ave., Brooklyn, N. Y.

Lower Cutting Costs With this Torch

Type LPG

Uses City Gas, Natural Gas or By-Product Gas

A torch especially developed for use with City Gas, Natural Gas or By-Product Gas. Employs famous Milburn principle of supermixing which results in greater efficiency and economy. Get full details of this LPG Cutting Torch and complete Milburn line of cutting and welding apparatus.

Ask for Booklet 3717 on Welding and Cutting Apparatus. Advise also if interested in Oil Pre-heaters, Paint Spray Equipment, Carbide Lights, etc.

THE ALEXANDER MILBURN COMPANY
1416-1428 W. Baltimore St. Baltimore, Md.

FLANGE END VALVES

We can furnish Valves for working pressures up to 1200 lbs. per sq. in.

Send for Circular 5

The LUDLOW
VALVE MANUFACTURING COMPANY
TROY, N. Y.

New York 82 Gold Street | Boston Tremont Bldg. | Philadelphia Harrison Building
Chicago The Rookery | Pittsburgh Oliver Bldg. | Kansas City R. A. Long Bldg

DEHYDRATING EQUIPMENT FOR GAS PLANTS

Apparatus for heating boiler feed water to high temperature with the absorption of heat from partial dehydration of gas.

Andale Company

ANDALE
REG. U.S. PAT. OFF.
Sixteenth and Arch Streets
PHILADELPHIA

Bring Back the "Lost Cooking Load"

"We have lost a goodly portion of our cooking load and bid fair to lose some more unless we, as an industry, can find some method to induce greater than present home cooking. What advantages can we use and how can we use them?"

Mr. J. L. Farrell of the Public Service Co., of New Jersey, in the January issue of the American Gas Association Monthly.

One of the big reasons for the decline in home cooking, is the hazard of burned arms and hands which every housewife has experienced when gas range cooking.

There *is* a Way!

We can give her a device that will be, not only labor-saving, but it will save her from burning her fingers, her wrists and her arms; and prevent soiled dresses, spilled food, greasy stoves and floors.

PARKE

SAFETY OVEN SHELVES

The Parke Safety Oven Shelves has been tested and approved by the Good Housekeeping Institute and the New York Herald-Tribune Institute, besides some of the largest Gas Companies in the East.

These shelves will not only prove an important factor in bringing back the "lost cooking load," but will greatly assist in increasing the domestic gas consumption, through the removal of those dangers to which the housewives are in constant dread. There is also the additional profit from the sale of the appliance as well as a means of building good-will.

The Parke Safety Oven Shelves are made of heavy gauge steel wire with enamel baked on, enabling them to be cleaned quickly. Hot shelves cannot be pulled out completely because of safety stops. Patented adjustable handle obviates use of towels or cloths. Can be installed in a few minutes in any type of gas range.

Gas Range manufacturers can add that last touch of completeness and safety to their product, by installing the Parke Safety Oven Shelves. We have a splendid proposition for the manufacturer.

Write at once for Fuller Information

WILLIAM PARKE, Inc.

537-549 So. Second St., Camden, N. J. --- New York Office, 29 Perry St.

Buyers' Reference Index

See page 111 for advertisements of these products

ACCUMULATORS—STEAM
Ruth's Steam Accumulator Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp
The Gas Machinery Co.
United Engineers & Constructors
ACETYLENE EQUIPMENT
Milburn Co., The Alexander
ACCOUNTING MACHINES
ADDING MACHINES
Remington Rand Business Service, Inc.
AIR-LINE MASK.
The Safety Gas Main Stopper Co.
AMMONIA CONCENTRATORS
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
Isbell-Porter Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Const. Co.
The Stacey Manufacturing Co.
John S. Unger.
Western Gas Construction Co.
AMMONIA CONCENTRATED LIQUOR PLANTS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
AMMONIA PIPE
National Tube Co.
AMMONIA RECOVERY APPARATUS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
AMMONIA STILLS
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Riter-Conley Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
Stacey Bros. Gas Constr. Co.
The Stacey Mfg. Co.
John S. Unger.
Western Gas Construction Co.
APPRAISALS & INVENTORIES
United Engineers & Constructors
ASBESTOS PACKING
Safety Gas Main Stopper Co.
ASH STORAGE BINS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
AUTOMATIC RAILWAYS
C. W. Hunt Co., Inc.
BAGS
Connelly Iron Sponge & Gov. Co.
Rubber & Canvas Covered
Safety Gas Main Stopper Co.
BAROMETERS
Taylor Instrument Companies
Precision Ther. & Inst. Co.
BENCHES
The Gas Machinery Co.
The Improved Equipment Co.
Isbell-Porter Co.
The Jersey City Refractories Co., Inc.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors
BENCHES
Complete
Semet Solvay Engineering Co.
BENZOL
Bartlett-Hayward Co.
Carl Still, Incorporated.
The Koppers Construction Co.
Semet Solvay Engineering Corp.
Western Gas Construction Co.
BILLING MACHINES
BOOKKEEPING MACHINES
Remington Rand Business Service, Inc.
BLOWERS
The Connersville Blower Co.
P. H. & F. M. Roots Co.
BLOWERS & BOOSTERS
Gas Engineering Co.
The Gas Machinery Co.
P. H. & F. M. Roots Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
Western Gas Construction Co.
BLUE GAS PLANT
Bartlett-Hayward Co.
Carl Still, Incorporated.
Gas Engineering Co.
The Gas Machinery Co.
The Improved Equipment Co.
Isbell-Porter Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.
BOILERS—WASTE HEAT
Bartlett-Hayward Co.
Combustion Engineering Corp.
The Gas Machinery Co.
Isbell-Porter Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
Western Gas Construction Co.
BOXES, CURB
Mueller Co.
BRICK
Silica
E. J. Lavino & Co.
BRICK, FIRE AND CHECKER
Botfield Refractories Co.
The Jersey City Refractories Co., Inc.
Russell Engineering Co.
Semet Solvay Engineering Corp
United Engineers & Constructors
Western Gas Construction Co.
BRUSHES, PIPE CLEANING
Safety Gas Main Stopper Co.
B. T. U. INDICATORS
United Engineers & Constructors
BUCKETS—CLAMSHELL
Geo. Haiss Mfg. Co.
BURNERS (Industrial)
Fuel
The C. M. Kemp Mfg. Co.
BY-PRODUCT PLANTS
Bartlett-Hayward Co.
Carl Still, Incorporated.
Internat'l Coal Carbonization Co.
The Gas Machinery Co.
The Koppers Construction Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
Western Gas Construction Co.
CABLE RAILWAYS
C. W. Hunt Co., Inc.
CALORIMETERS
Alpha-Lux Company (Inc.).
American Meter Co.
Lambert Meter Co.
D. McDonald & Co.
Metric Metal Works
CARBONIZATION
Low Temperature
Internat'l Coal Carbonization Co.
CARBURETTED WATER GAS PLANTS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
CARS
C. W. Hunt Co., Inc.
CASING, SEAMLESS STEEL
Pittsburgh Steel Products Co.
CAST IRON FITTINGS
James B. Clow & Sons
CEMENTS
Botfield Refractories Co.
The Jersey City Refractories Co. Inc.
Russell Engineering Co.
CEMENTS, ACID-PROOF
Quigley Furnace Spec. Co., Inc.
CEMENTS, FIREBRICK
Botfield Refractories Co.
Quigley Furnace Spec. Co., Inc.
CEMENTS, HIGH TEMPERATURE
Refractory
Botfield Refractories Co.
E. J. Lavino & Co.
Quigley Furnace Spec. Co., Inc.
CHARGING MACHINERY
Bartlett-Hayward Co.
The Gas Machinery Co.
Isbell-Porter Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
Western Gas Const. Co.
CHUTES
C. W. Hunt Co., Inc.
CLAMPS (PIPE)
S. R. Dresser Manufacturing Co.
Mueller Co.
COALS
Boone County Coal Corp.
Pittsburgh Coal Co.
Westmoreland Coal Co.
COAL GAS APPARATUS
Bartlett-Hayward Co.
Carl Still, Incorporated.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.
COAL & COKE BINS CASTINGS
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
COAL AND COKE HANDLING MACHINERY
Bartlett-Hayward Co.
Geo. Haiss Mfg. Co.
C. W. Hunt Co., Inc.
Dry Quenching Equipment Corp.
Isbell-Porter Co.
The Koppers Construction Co.
Riter-Conley Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
Western Gas Construction Co.
COAL TAR PRODUCTS
Western Gas Construction Co.
COAL TUBS
C. W. Hunt Co., Inc.
COCKS
Angle Stove
Mueller Co.
Boiler Drain
Mueller Co.
Hose
Mueller Co.
Meter
Kitson Company
Mueller Co.
Service
Kitson Co.
Mueller Co.
COKE CRUSHERS
Semet Solvay Engineering Corp.
COKE QUENCHING
Dry Quenching Equipment Corpn.
COMPUTERS
Heating Value
United Engineers & Constructors
CONDENSERS
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Constr. Co.
The Stacey Mfg. Co.
Western Gas Construction Co.
High Duty
United Engineers & Constructors
CONTRACTORS' TUBS
C. W. Hunt Co., Inc.
CONTROLS
Am. Schaeffer & Budenberg Corp.
Bartlett-Hayward Co.
The Gas Machinery Co.
Robertshaw Thermostat Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
United-Engineers & Constructors
Taylor Instrument Cos.
Western Gas Construction Co.
Hot Water Heat System
Mueller Co.
CONVEYORS
Geo. Haiss Mfg. Co.
C. W. Hunt Co., Inc.
Isbell-Porter Co.
The Koppers Construction Co.
Semet Solvay Engineering Corp.
CONCENTRATORS AMMONIA
Bartlett-Hayward Co.
The Gas Machinery Co.
Isbell-Porter Co.
Semet Solvay Engineering Corp.
COOLERS
Andale Co.
Semet-Solvay Engineering Corp.
Western Gas Construction Co.
COOLING COILS
Semet-Solvay Engineering Corpn.
COUPLINGS
Bartlett-Hayward Co.
S. R. Dresser Manufacturing Co.
National Tube Co.
P. H. & F. M. Roots Co.
CRUSHERS
C. W. Hunt Co., Inc.
DE-EMULSIFIERS
Semet-Solvay Engineering Corpn.
DEHYDRATORS, GAS
Andale Co.
DERRICK—PIPE
Safety Gas Main Stopper Co.
DISCHARGING MACHINERY
Bartlett-Hayward Co.
Russell Engineering Co.
DOMESTIC INCINERATORS
Kernit Incinerator Co.
DRAFT GAUGES
Am. Schaeffer & Budenberg Corp.
Bristol Co., The
Precision Ther. & Inst. Co.
DRILLING MACHINES
Mueller Co.
ELECTRIC LOCOMOTIVES
C. W. Hunt Co., Inc.
ELEVATORS
Craig Ridgway & Son Co.
ENGINE INDICATORS
Am. Schaeffer & Budenberg Corp.
ENGINEERS
Combustion
Bartlett-Hayward Co.
The Improved Equipment Co.
The Koppers Construction Co.
Russell Engineering Co.
Smoot Engineering Corp.
Consulting
Bartlett-Hayward Co.
The Koppers Construction Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
George H. Waring
Contracting
Andale Co.
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
Isbell-Porter Co.
The Improved Equipment Co.
The Koppers Construction Co.
Russell Engineering Co.
Semet Solvay Engineering Corp
The Stacey Bros. Gas Constr. Co.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.
EXHAUSTERS
The Connersville Blower Co.
The Gas Machinery Co.
Isbell-Porter Co.
P. H. & F. M. Roots Co.
The Stacey Mfg. Co.
United Engineers & Constructors
EXPANSION BENDS
Mueller Co.
FILES (Steel and Wood)
Remington Rand Business Service, Inc.
FIREBRICK—CHECKER BRICK
Botfield Refractories Co.
The Jersey City Refractories Co., Inc.
Russell Engineering Co.
Semet Solvay Engineering Co.
United Engineers & Constructors
Western Gas Construction Co.
FIREBRICK, CEMENT
Botfield Refractories Co.
Quigley Furnace Spec. Co., Inc.
FITTINGS
Isbell-Porter Co.
The Gas Machinery Co.
Mueller Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
U. S. Cast Iron Pipe & Fdy. Co.
Western Gas Construction Co.
FITTINGS, FLANGED
U. S. Cast Iron Pipe & Fdy. Co.
FITTINGS
Pipe
American Cast Iron Pipe Co.
Semet-Solvay Engineering Corp.
FIXTURES
General Gas Light Co.
Welsbach Co.
FLOORS, IRON, BRICK AND STEEL
Western Gas Construction Co
FLUE PIPE (Cast Iron Oval)
James B. Clow & Sons

WESTMORELAND "CRITERION" GAS COAL

The Standard for Gas Making Since 1854

Since this Company commenced operations, its well-known Westmoreland "Criterion" Gas Coal has been largely used by the Gas Companies of Northeastern United States and Canada, and its character is established as having no superior in gas giving qualities and freedom from sulphur and other impurities.

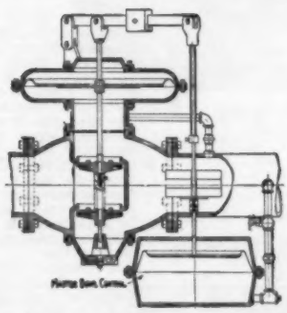
Mines situated on the Pennsylvania Railroad,
in Westmoreland County, Pa.

THE WESTMORELAND COAL COMPANY

Principal Office, Lewis Building, 15th and Locust Sts., Philadelphia, Pa.

Shipping Ports: Philadelphia, Baltimore, South Amboy, N. J., Lake Ports.

GROBLE
REGULATORS & GOVERNORS



Master Bowl Control insures sensitive regulation and positive lock-off for industrial customers.

GROBLE GAS REGULATOR COMPANY

Anderson, Indiana

Representatives

Utilities Service Co., Peoples Gas Building, Chicago.
H. E. Broughton, 404 Donovan Building, Detroit.
L. E. Tremain, 302 Finance Building, Cleveland.
The Worrall Co., 427 Central Ave., East Orange, N. J.
Midland Supply Co., Dwight Building, Kansas City, Mo.

Clark Industrial Burner Tips

These Tips are employed in a wide variety of industrial burner applications.

Low pressure fan blast systems are best equipped with Lava tips, because of their dependability.

Manufactured in 15, 30, and 45 cubic foot capacities, to fit ¾", 1", and 1¼" standard reducing couplings.

We invite correspondence.

American Lava Corporation

29-59 William St. Chattanooga, Tenn.

Manufacturers of Lava Tips & Heat Resistant Insulators

LAVINO OXIDE

Intensely Active. High Total Sulphur Absorption at Minimum Cost.

"THE EFFICIENT PURIFIER"

The Sponge with the large Tough Shavings Always Uniform

LAVINO SPONGE

E. J. LAVINO and COMPANY - BULLITT BLDG. - PHILADELPHIA, PA.

NEW YORK CHICAGO PITTSBURGH

Buyers' Reference Index

See page 111 for advertisements of these products

FLUES (Consuming) for Gas Range
Akme Flue, Inc.
FURNACES
Gas Fired
Warm Air
Geo. D. Roper Co.
GAS ANALYSIS APPARATUS
American Meter Co.
S. R. Dresser Manufacturing Co.
Metric Metal Works
Precision Ther. & Inst. Co.
United Engineers & Constructors
GASKETS
Southwestern Pipe Joint & Engineering Co.
Safety Gas Main Stopper Co.
GAS MASKS
Safety Gas Main Stopper Co.
GAS PLANTS, COMPLETE
Bartlett-Hayward Co.
Carl Still, Incorporated.
The Gas Machinery Co.
Gas Engineering Co.
The Improved Equipment Co.
Isbell-Porter Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.
West Gas Improvement Co.
GAS TESTING APPARATUS
Alpha-Lux Company, Inc.
Lambert Meter Co.
Metric Metal Works
Pittsburgh Equitable Meter Co.
Precision Ther. & Inst. Co.
Superior Meter Co.
United Engineers & Constructors
GAUGE BOARDS
Am. Schaeffer & Budenberg Corp.
Western Gas Construction Co.
GAUGES
Am. Schaeffer & Budenberg Corp.
American Meter Co.
The Bristol Co.
Connelly Iron Sponge & Gov. Co.
Helme & McIlhenny
Lambert Meter Co.
Maryland Meter Works
Metric Metal Works
Safety Gas Main Stopper Co.
Taylor Instrument Companies
Pressure-Recording
American Schaeffer & Budenberg Co
D. McDonald & Co.
Superior Meter Co.
GLOVES
Rubber
Leather
Safety Gas Main Stopper Co.
GOVERNORS
The Stacey Mfg. Co.
Automatic
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
Pittsburgh Equitable Meter Co.
Coke Oven
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
The Gas Machinery Co.
The Koppers Construction Co.
Pittsburgh Equitable Meter Co.
Semet Solvay Engineering Corp
Smoot Engineering Corp.
District
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov Co.
Groble Gas Regulator Co.
Helme & McIlhenny
Isbell-Porter Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
Exhauster
Chaplin-Fulton Mfg Co.
Connelly Iron Sponge & Gov. Co.
The Connersville Blower Co.
Isbell-Porter Co.
Pittsburgh Equitable Meter Co
Smoot Engineering Corp.
High Pressure
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
P. H. & F. M. Roots Co.
Smoot Engineering Corp.
The Sprague Meter Co.
Laboratory
D. McDonald & Co.
Low Pressure
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
P. H. & F. M. Roots Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
The Sprague Meter Co.
Retort House
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
The Gas Machinery Co.
Isbell-Porter Co.
Pittsburgh Equitable Meter Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
Service
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
Mueller Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
Station
The Sprague Meter Co.
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
Helme & McIlhenny
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
Semet Solvay Engineering Corp.
Station Automatic
Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov Co.
Pittsburgh Equitable Meter Co.
GRAVITOMETERS
Precision Thermometer & Instrument, Co.
Taylor Instrument Cos.
HEATERS
Room
James B. Clow & Sons
General Gas Light Co.
Homestead Heater.
Welsbach Company
HEATERS (WATER)
Hot Water
Electric Porcelain & Mfg. Co.
Humphrey Co.
Kompak Company
Welsbach Co.
House
American Gas Products Corp.
HOISTS
C. W. Hunt Co., Inc.
Geo. Haiss Mfg. Co., Inc.
HOLDERS
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
The Koppers Construction Co.
Riter-Conley Co.
The Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
Western Gas Construction Co.
HOPPERS—COAL AND COKE
Bartlett-Hayward Co.
Cruse-Kemper Co.
Riter-Conley Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
HOTELS
Shelburne Hotel.
HYDROGEN GAS APPARATUS
Bartlett-Hayward Co.
Gas Engineering Co.
The Improved Equipment Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
HYDROMETERS
Precision Ther. & Inst. Co.
Taylor Instrument Companies
INCINERATORS—GAS FIRED
Kernit Incinerator Co.
INDUSTRIAL GAS MIXERS
Geo. D. Roper Corp.
INDUSTRIAL TRACK
C. W. Hunt Co., Inc.
INSTRUMENTS
Am. Schaeffer & Budenberg Corp.
The Bristol Co.
Metric Metal Works
Precision Ther. & Inst. Co.
P. H. & F. M. Roots Co.
Taylor Instrument Cos.
United Engineers & Constructors
Recording
Am. Schaeffer & Budenberg Corp.
Alpha-Lux Company, Inc.
Superior Meter Co.
JOINTS (Pipe)
Southwest Pipe Joint & Eng. Co.
Semet-Solvay Engineering Corp.
U. S. Cast Iron Pipe & Foundry Co.
Insulating
Semet-Solvay Engineering Corp.
United Engineers & Constructors
JOINT RUNNERS
Safety Gas Main Stopper Co.
LAMPS
General Gas Light Co.
Kitson Co.
Welsbach Co.
LAMP POSTS
General Gas Light Co.
Kitson Co.
Welsbach Street Lighting Co. of America
LOADERS—BUCKET, PORTABLE
Geo. Haiss Mfg. Co.
LOOSE LEAF EQUIPMENT
Remington Rand Business Service, Inc.
MANILA & WIRE ROPE
C. W. Hunt Co., Inc.
MANTLES
General Gas Light Co.
Welsbach Co.
MASKS—GAS
Melters
Connelly Iron Sponge & Gov. Co.
The Safety Gas Main Stopper Co
MAST & GAFF OUTFITS
Geo. Haiss Mfg. Co.
C. W. Hunt Co., Inc.
MEASURING CHUTES
C. W. Hunt Co., Inc.
METERS
Air
American Meter Co.
The Conneravilie Blower Co.
John J. Griffin & Co.
Lambert Meter Co.
D. McDonald & Co.
Metric Metal Works
Neptune Meter Co.
Pittsburgh Equitable Meter Co.
P. H. & F. M. Roots Co.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
United Engineers & Constructors
Artificial
American Meter Co.
John J. Griffin & Co.
Helme & McIlhenny
Lambert Meter Co.
Marvland Meter Works
D. McDonald & Co.
Metric Metal Works
Neptune Meter Co.
Pittsburgh Equitable Meter Co.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
Demand
D. McDonald & Co.
Dry
American Meter Co.
Lambert Meter Co.
Maryland Meter Works
D. McDonald & Co.
Metric Metal Works
Pittsburgh Equitable Meter Co.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
Natural Gas
American Meter Co.
The Connersville Blower Co.
John J. Griffin & Co.
Helme & McIlhenny
Lambert Meter Co.
Maryland Meter Works
D. McDonald & Co.
Metric Metal Works
P. H. & F. M. Roots Co.
Pittsburgh Equitable Meter Co.
The Sprague Meter Co.
Superior Meter Co.
Oil
Western Gas Construction Co.
Prepayment
American Meter Co.
John J. Griffin & Co.
Lambert Meter Co.
Maryland Meter Works
D. McDonald & Co.
Metric Metal Works
Pittsburgh Equitable Meter Co.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
Station
American Meter Co.
The Connersville Blower Co.
The Gas Machinery Co.
John J. Griffin & Co.
Lambert Meter Co.
Maryland Meter Works
D. McDonald & Co.
Metric Metal Works
Pittsburgh Equitable Meter Co.
P. H. & F. M. Roots Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
Steam
United Engineers & Constructors
Test
American Meter Co.
John J. Griffin & Co.
Lambert Meter Co.
Maryland Meter Works
D. McDonald & Co.
Metric Metal Works
Pittsburgh Equitable Meter Co.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
METER CONNECTIONS
American Meter Co.
Bartlett-Hayward Co.
S. R. Dresser Manufacturing Co.
D. McDonald & Co.
Maryland Meter Works
Mueller Co.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works
MIXERS, GAS
The C. M. Kemp Mfg. Co.
Geo. D. Roper Corp.
Smoot Engineering Corp.
MOTOR CARS
C. W. Hunt Co., Inc.
NAPHTHALENE EXTRACTORS
Semet-Solvay Engineering Corp.
Western Gas Consruction Co.
ORE, CHROME
Botfield Refractories Co.
Lavino, E. J. & Co.
OVENS COKE AND GAS
Carl Still, Incorporated.
The Gas Machinery Co.
The Improved Equipment Co.
The Koppers Construction Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
OXIDE
Alpha-Lux Company, Inc.
Connelly Iron Sponge & Gov. Co.
Gas Purifying Materials Co., Inc
E. J. Lavino & Co.
PACKING
Asbestos
Jute
The Safety Gas Main Stopper Co.
PAINTS
Jos. Dixon Crucible Co.
United Engineers & Constructors
Wailes Dove-Hermiston Corp.
PAINTS, ANTI ACID AND ALKALI
Quigley Furnace Spec. Co., Inc.
PAINTS
Graphite
Jos. Dixon Crucible Co.
PAINTS, RUSTPROOF
Quigley Furnace Spec. Co., Inc.
PHOTOMETERS (JET)
Connelly Iron Sponge & Gov. Co.
PHOTOMETERS
Lambert Meter Co.
United Engineers & Constructors
Warren Foundry & Pipe Co.
PIPE
Bartlett-Hayward Co.
Cast Iron Pipe Publicity Bureau
National Tube Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.

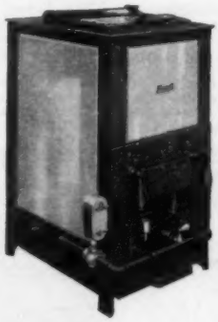
KERNIT INCINERATOR COMPANY

AMPERE, NEW JERSEY

Our booklet "Modern Disposal of Waste—The Kernit Way" will explain to your customers the conveniences and advantages of household incineration. Arrange to place a copy in the hands of a selected list of prospects.

Our Service Bulletin No. 1 suggests a definite sales plan for merchandising gas-fired incinerators.

The Kernit is a quality product



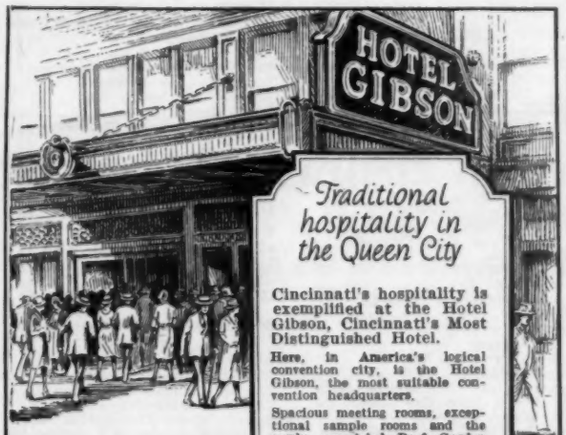
Put a Display Unit on Your Sales Floor

Byllesby Engineering and Management Corporation

BYLLESBY — PIONEERS IN PUBLIC SERVICE — ENGINEERING FINANCE MANAGEMENT

CHICAGO NEW YORK

Pittsburgh San Francisco



Traditional hospitality in the Queen City

Cincinnati's hospitality is exemplified at the Hotel Gibson, Cincinnati's Most Distinguished Hotel.

Here, in America's logical convention city, is the Hotel Gibson, the most suitable convention headquarters.

Spacious meeting rooms, exceptional sample rooms and the newly remodeled Roof Garden offer 20,000 square feet display space. Restaurant accommodations meet with the approval of the most discriminating. Write for particulars.

1000 ROOMS with baths $3 & upward

This is Cincinnati's hospitable front door

Hotel Gibson

RALPH HITZ *Manager*

MITCHELL ELECTRIC VIBRATING SCREEN

Especially adaptable to the screening of coal and coke. In the re-screening of coke, the terrific vibrations, occurring 3,600 times a minute, remove all breeze at the lowest cost per ton. It requires minimum floor space and head room. It is self-contained, dust and water proof. Requires less than ¾ H. P. per standard screen.

WE DESIGN AND BUILD:

Industrial Railways, Automatic Railways, Cable Railways, Cars, Tracks, Switches, Motor Cars, Scales, Conveyors, Skip Hoists, Electric Vibrating Screens, Cut-off Valves, or Gates, Weighing and Measuring Devices, Coal Crackers, "Stevedore" Transmission Rope, and the "Flotograv" (Coke Reclamation System).

C.W. HUNT CO. Inc.

WEST NEW BRIGHTON, STATEN ISLAND, N. Y.

Chicago - Montreal - Boston

HUNT

Buyers' Reference Index

See page 111 for advertisements of these products

U. S. Cast Iron Pipe & Fdy. Co.
Western Gas Construction Co.
Bell
Donaldson Iron Co.
Cast Iron
James B. Clow & Sons
Donaldson Iron Co.
McWane Cast Iron Pipe Co.
Copper Service
Mueller Co.
Flange
Donaldson Iron Co.
U. S. Cast Iron Pipe & Fdy. Co.
Spigot
Donaldson Iron Co.
Steel
Smith Corpn., A. O.
Welded Steel
The Stacey Mfg. Co.
Semet-Solvay Engineering Corp.

PIPE COATINGS
Wailes Dove-Hermiston Corp.

PRESSURE HOLDERS
The Stacey Bros. Gas Const. Co.

PLATES
Floor
Cruse-Kemper Co.
Gas Engineering Co.
Riter-Conley Co.
Russell Engineering Co.
The Stacey Mfg. Co.

PLUGS SERVICE AND MAIN
Rubber
Soft Wood
The C. M. Kemp Mfg. Co.
Soft Wood
The Safety Gas Main Stopper Co.

PRODUCER GAS PLANT
Gas Engineering Co.
The Gas Machinery Co.
The Koppers Construction Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.

PROVERS—METER
American Meter Co.
Helme & McIlhenny
Lambert Meter Co.
D. McDonald & Co.
Pittsburgh Equitable Meter Co.
Superior Meter Co.

PUMPS
Lambert Meter Co.
P. H. & F. M. Roots Co.
Superior Meter Co.
Drip
The Connersville Blower Co.
D. McDonald & Co.
Mueller Co.
George D. Roper Corp.
Gas Bag
The Safety Gas Main Stopper Co.
Hand
George D. Roper Corp.
Oil
The Connersville Blower Co.
D. McDonald & Co.
George D. Roper Corp.
Semet Solvay Engineering Corp.
Power
George D. Roper Corp.
Pressure
D. McDonald & Co.
Service
The Safety Gas Main Stopper Co.
Service Cleaner
Mueller Co.
Tar
The Connersville Blower Co.
D. McDonald & Co.
George D. Roper Corp.
P. H. & F. M. Roots Co.
Semet Solvay Engineering Corp.
Vacuum
D. McDonald & Co.
P. H. & F. M. Roots Co.
Water
George D. Roper Corp.

PURIFIERS
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.

PURIFYING MATERIALS
Alpha-Lux Company, Inc.
Connelly Iron Sponge & Gov. Co.
Cruse-Kemper Co.
Gas Purifying Materials Co., Inc.
Lavino, E. J., & Co.

PURIFIER TRAYS
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
United Engineers & Constructors

PYROMETERS
Indicating
Recording
The Bristol Co.
Taylor Instrument Companies
Optical
Radiation
Pyrometer Instrument Co.

RADIATORS
Gas Steam
Gas Water
James B. Clow & Sons

RANGES—GAS
American Stove Co.
Electric Porcelain & Mfg. Co.
Geo. D. Roper Corp.

REAMERS
Pipe End
Mueller Co.

REFRACTORY CEMENTS
Botfield Refractories Co.
Quigley Furnace Spec. Co., Inc.

REFRACTORY GUN
Botfield Refractories Co.
Quigley Furnace Spec. Co., Inc.

REFRACTORY LININGS
Alpha-Lux Company, Inc.
Botfield Refractories Co.
The Gas Machinery Co.
The Jersey City Refractories Co. Inc.
E. J. Lavino & Co.
Russell Engineering Co.
Quigley Furnace Spec. Co., Inc.
Semet Solvay Engineering Corp.
United Engineers & Constructors

REGULATORS
Am. Schaeffer & Budenberg Corp.
American Stove Co.
The Chaplin-Fulton Mfg. Co.
Connelly Iron Sponge & Gov. Co.
Isbell-Porter Co.
Groble Gas Regulator Co.
Mueller Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
Robertshaw Thermostat Co.
P. H. & F. M. Roots Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
The Sprague Meter Co.
Taylor Instrument Companies

RETORT CEMENT
Alpha-Lux Company, Inc.
Botfield Refractories Co.
The Improved Equipment Co.
The Jersey City Refractories Co. Inc.
E. J. Lavino & Co.
Quigley Furnace Specialties Co., Inc.
Russell Engineering Co.

RETORTS
The Jersey City Refractories Co., Inc.
E. J. Lavino & Co.
Riter-Conley Co.
Horizontal and Inclined
Silica and Clay
The Gas Machinery Co.
The Improved Equipment Co.
Russell Engineering Co.
Silica and Clay
The Gas Machinery Co.
The Improved Equipment Co.
The Jersey City Refractories Co. Inc.
Russell Engineering Co.
Vertical
United Engineers & Constructors

RUBBER RINGS
Southwestern Pipe Joint & Engineering Co.

SAFES
Cabinet and File
Remington Rand Business Service, Inc.

SCALES
C. W. Hunt Co., Inc.

SCRUBBERS
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Constr. Co.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.

SERVICE BOXES
Mueller Co.

SERVICE PLUG—RUBBER
The Safety Gas Main Stopper Co.

SKIP HOISTS
C. W. Hunt Co., Inc.

SPONGE
Alpha-Lux Company, Inc.
Connelly Iron Sponge & Gov. Co.
Gas Purifying Materials Co., Inc.
Lavino, E. J., & Co.

SPRAYERS, PAINT
Milburn Co., The Alexander

STRAINERS—GAS, STEAM, WATER
Andale Co.

STATION METERS
American Meter Co.
The Connersville Blower Co.
The Gas Machinery Co.
Maryland Meter Works
D. McDonald & Co.
Metric Metal Works
Pittsburgh Equitable Meter Co.
P. H. & F. M. Roots Co.

STATIONERY—LITHOGRAPH
Remington Rand Business Service, Inc.

STEAM ACCUMULATORS
The Gas Machinery Co.
Semet Solvay Engineering Corp.
Smoot Engineering Corp.
United Engineers & Constructors

STOPPERS
The Safety Gas Main Stopper Co.

STREET DEPT. EQUIPMENT
The Safety Gas Main Stopper Co.

STOVES—GAS
Electric Porcelain & Mfg. Co.
Geo. D. Roper Corp.

STREET LAMPS
General Gas Light Co.
Kitson Co.
Welsbach Street Lighting Co. of America

SYSTEMS
Combustion Control
The C. M. Kemp Mfg. Co.
Smoot Engineering Corp.
Hot Water Heat Control
Mueller Co.

TACHOMETERS
Bristol Co., The
Precision Ther. & Inst. Co.

TANKS
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
Riter-Conley Co.
Semet Solvay Engineering Corp.
The Stacey Bros. Gas Constr. Co.
The Stacey Mfg. Co.
Western Gas Construction Co.
High Pressure
The Stacey Mfg. Co.

TANK REGULATORS
Am. Schaeffer & Budenberg Corp.

TAPE, SOAP—BINDING
The Safety Gas Main Stopper Co.

TAPPING MACHINES
Mueller Co.

TAR DISPLACEMENT SYSTEM
Semet-Solvay Engineering Corp.
Western Gas Construction Co.

TAR DISTILLING PLANTS
Carl Still, Incorporated.
Gas Engineering Co.
The Gas Machinery Co.
Riter-Conley Co.
Semet-Solvay Engineering Corp.
The Stacey Bros. Gas Const. Co.

TAR EXTRACTORS
Bartlett-Hayward Co.
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Co.
The Koppers Construction Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.

TEMPERATURE CONTROLLING DEVICE
Am. Schaeffer & Budenberg Corp.
American Stove Co.
The Bristol Co.
Robertshaw Thermostat Co.
Taylor Instrument Cos.

THERMOSTATS
The Bristol Co.
Robertshaw Thermostat Co.
Taylor Instrument Cos.

THERMOMETERS
Am. Schaeffer & Budenberg Corp.
American Meter Co.
The Bristol Co.
Lambert Meter Co.
D. McDonald & Co.
Metric Metal Works
Precision Ther. & Inst. Co.
Semet Solvay Engineering Corp.
Superior Meter Co.
Taylor Instrument Companies

TOOLS
Caulking
Mueller Co.

TOOLS, PIPE GANG
The Safety Gas Main Stopper Co.

TORCHES—WELDING AND CUTTING
Milburn Co., The Alexander

TRAPS—STEAM
Am. Schaeffer & Budenberg Corp.

TRENCH DIGGERS—
Austin Machinery Co.
Cleveland Trencher Co.
Geo. Haiss Mfg. Co., Inc.

TUBES, BOILER
National Tube Co.

TYPEWRITERS
Remington Rand Business Service, Inc.

U GAUGES
Am. Schaeffer & Budenberg Corp.

VACUUM GAUGES
Bristol Co., The
Precision Ther. & Inst. Co.

VALVES
Am. Schaeffer & Budenberg Corp.
Andale Co.
Bartlett-Hayward Co.
The Bristol Co.
James B. Clow & Sons
The Gas Machinery Co.
Isbell-Porter Co.
The Ludlow Valve Mfg. Co.
Metric Metal Works
Mueller Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
Taylor Instrument Cos.
United Engineers & Constructors
Western Gas Construction Co.

VALVES—COAL AND ASH VALVES
C. W. Hunt Co., Inc.

VISIBLE RECORD EQUIPMENT
Remington Rand Business Service, Inc.

WASTE HEAT BOILERS
Bartlett-Hayward Co.
The Gas Machinery Co.
Russell Engineering Co.
Semet Solvay Engineering Corp.
United Engineers & Constructors
Western Gas Construction Co.

WATER GAS APPARATUS
Bartlett-Hayward Co.
The Gas Machinery Co.
Isbell-Porter Co.
Semet Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors
Western Gas Construction Co.

WATER GAS GENERATORS
Semet-Solvay Engineering Corp.
Western Gas Const. Co.

WATER HEATERS
Electric Porcelain & Mfg. Co.
James B. Clow & Sons
Humphrey Co.
Welsbach Co.

WELDING EQUIPMENT
Milburn Co., The Alexander

WEIGH LARRIES
C. W. Hunt Co., Inc.

YARN, CAULKING
The Safety Gas Main Stopper Co.

CLASSIFIED ADVERTISEMENTS

Rate at $5.00 per inch for first insertion. $4.00 per inch for each additional insertion of same copy. Positions wanted—$2.00 per issue.

POSITION OPEN

GAS SALES ENGINEER—Large Eastern Utility Company desires engineering graduate with experience in application of gas to industrial processes. Position requires one who is capable of superintending the construction and erection of gas fired industrial equipment and follow up of such installations to insure satisfactory operation. Please state age, education, experience and salary desired. Address Box 946, care American Gas Journal, 53 Park Place, New York City.

Progressive, well organized and equipped industrial gas department in the Middle West has an opening for an ambitious engineer. Advise age, experience and salary desired. Address Box 947, care American Gas Journal, 53 Park Place, New York City.

POSITION WANTED

Plant Foreman or General Foreman for a small Company by a practical Gas Man; 20 years experience in the Manufacturing and Distribution of both Coal and Water Gas. A-1 Reference to ability and character. Open for position September 1, 1928. Address replies to Box 945, care American Gas Journal, 53 Park Place, New York City.

EVERY GAS PLANT NEEDS

ADAMANT
Fire Brick Cement

ADACHROME
ADACHROME Fines
ADAPATCH
The ADAMANT Gun

IF you will send us an outline of your refractories difficulties, we shall be glad to submit suggestions.

BOTFIELD REFRACTORIES COMPANY
Swanson and Clymer Sts., Philadelphia, Pa.

EMPLOYMENT SERVICE

Register your name with the American Gas Journal if you contemplate making a change in your present position.

We frequently hear of vacancies in the industry which might interest you.

This service is both free and confidential.

AMERICAN GAS JOURNAL.

GEORGE H. WARING
CONSULTING ENGINEER
624 GRAND RAPIDS NATIONAL BANK BLDG.
Grand Rapids Mich.

Specialists in Fire Clay Refractories
With Over 30 Years Experience

Fire Brick for oil fuel furnaces, boilers and metallurgical furnaces.
Tiles and blocks of special shape for all purposes.
Muffles and planches, Coal gas benches.
Brass furnace linings, Water gas linings, Cupola linings.
Clay and Silica Retorts and settings.
Ground fire clay, Ground fire brick, Plastic fire brick, Refractory Cements.

THE JERSEY CITY REFRACTORIES CO.
135 WEST SIDE AVENUE *A. E. ACHESON* JERSEY CITY, N. J.

1876 PURIFYING MATERIAL, — BAGGED OR BULK 1927
Manufacturers of GOVERNORS, APPARATUS and EQUIPMENT
IRON Connelly Iron Sponge and Governor Co. SPONGE
New York, Chicago U.S.A.
USE THE BENEFIT OF 50 YEARS EXPERIENCE!

ANALYTIC CHART
of
NATURAL GAS SECURITIES
Copies Sent Upon Request
Zwetsch, Heinzelmann & Co.
Inc.
57 William Street New York

ISBELL-PORTER COMPANY
Engineers and Contractors for Complete Gas Works
I-P C
Manufacturers of All Kinds of Gas Apparatus
NEWARK - NEW JERSEY

Lux Material
guaranteed to always run uniform. It has been used by Gasworks all over the world for nearly 50 years. We offer same from a shipping point most conveniently located to your works. Shipped in bulk or bags.

Lux-Sponge
THE PERFECT READY MIXED OXIDE
For Gasworks having no facilities to mix their own Sponge we offer our celebrated "Lux-Sponge," guaranteed efficient for Coal or Water Gas.
Samples upon request.
THE ALPHA-LUX COMPANY, Inc.
192 FRONT STREET - NEW YORK CITY, N. Y.

JOHN S. UNGER
GAS ENGINEER
Specialist in Ammonia Recovery and Manufacture of Ammonia Products.
Builder of Unger Ammonia Stills
640 GRACE ST., CHICAGO

GAS ENGINEERING CO.
Manufacturers of Gas Production Equipment
TRENTON, N. J.

Russell Engineering Company St. Louis
Coal Carbonization Plants, Benches, Repairs, Improvements, Extensions, Apparatus

ALPHABETICAL LIST OF ADVERTISERS

Alpha Lux Co..... 110
American Cast Iron Pipe Co..... 88
American Lava Corp..... 105
American Meter Co..... 77-80
American Schaeffer and Budenberg Corp..... 98
American Stove Co..... 58
Andale Engineering Co..... 102
Austin Machinery Corp..... 87

Bartlett Hayward Co..... 22
Boone County Coal Corp.....Front Cover
Botfield Refractories Co..... 109
Bristol Co., The..... 94
Byllesby Engineering & Management Corp.... 107

Cast Iron Pipe Research Assn..... 95
Chaplin-Fulton Mfg. Co..... 98
Cleveland Gas Burner & Appliance Co., The.. 56
Cleveland Heater Co..... 67-68
Cleveland Trencher Co..... 89
Clow & Sons, James B..... 73
Connelly Iron Sponge & Governor Co..... 109
Connersville Blower Co..... 11
Cruse-Kemper Co..... 14

Dixon Crucible Co..... 20
Dresser, S. R., Mfg. Co..... 21
Dry Quenching Equipment Corp..... 8

Gas Engineering Co..... 110
Gas Machinery Co..... 10
Gas Purifying Materials Co..... 100
Griffin, John J., & Co..... 79
Groble Gas Regulator Co..... 105

Haiss Manufacturing Co., Inc., Geo..... 92
Helme & McIlhenny..... 77
Homestead Heater Co..... 83
Hotel Gibson..... 107
Humphrey Company..... 101
Hunt, C. W., Co..... 107

Improved Equipment Co..... 9
Isbell-Porter Co..... 110

Jersey City Refractories Co..... 109

Kemp Mfg. Co..... 94
Kernit Incinerator Co..... 107
Kitson Company..... 112

Lambert Meter Co..... 100
Lavino & Co., E. J..... 105
Ludlow Valve Co..... 102

McDonald & Co., D..... 77
McWane Cast Iron Pipe Co..... 91
Manning, Maxwell & Moore, Inc..... 17
Maryland Meter Works..... 77
Metric Metal Works..... 77
Milburn Co., The Alexander..... 102
Mueller Company..... 12

National Tube Co..... 97

Parke, Inc., William..... 103
Pittsburgh Coal Company..... 113
Pittsburgh Equitable Meter Co..... 15
Pittsburgh Steel Products Co..... 93
Precision Thermometer & Instrument Co..... 96

Quigley Furnace Specialties Co..... 100

Remington Rand Business Service, Inc..... 90
Reynolds Gas Regulator Co..... 18
Ridgway & Son Co., Craig..... 85
Riter-Conley Co..... 100
Robertshaw Thermostat Co..... 75
Robins Conveying Belt Co..... 16
Roots Co., P. H. & F. M..... 19
Russell Engineering Co..... 110

Safety Gas Main Stopper Co..... 102
Semet-Solvay Co..... 96
Semet-Solvay Engineering Corp..... 5
Smith Corp., A. O..... 57
Smoot Engineering Co..... 6
Sprague Meter Co..... 86
Stacey Brothers Gas Construction Co..... 55
Stacey Manufacturing Co..... 4
Still Corp., Carl..... 13
Superior Meter Co..... 85

Taylor Instrument Co..... 92
Tufts Meter Works, Nathaniel..... 80

Unger, John S..... 110
United Engineers & Constructors, Inc..... 7
U. S. Cast Iron Pipe Co..... 114

Waring, George H..... 109
Welsbach Company..... 71
Western Gas Construction Co..... 2
Westmoreland Coal Co..... 105

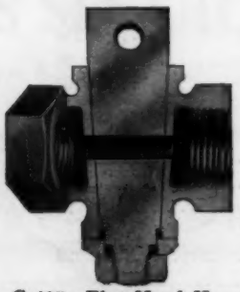
Zwetsch, Heinzelmann & Co..... 110

BUYERS' REFERENCE INDEX, PAGES 104, 106, 108

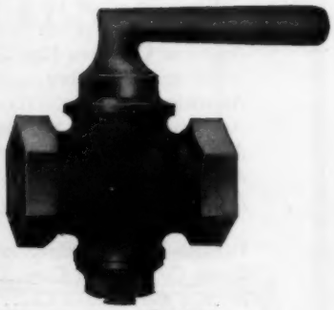
"KITSON"

G-201—Flat Head Key

G-205
Squarehead Standard



G-417—Flat Head Key
High Pressure Cock

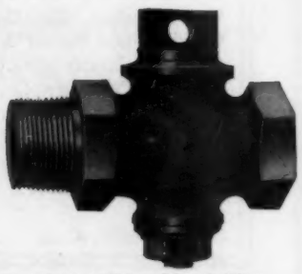


G-207
Solid Lever Handle Key

G-415—Flat Head Key

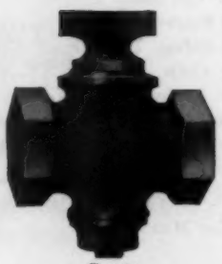
G-215
Lockwing Standard

G-515—Iron Body Gas Cock, Long Wing, with Brass Key



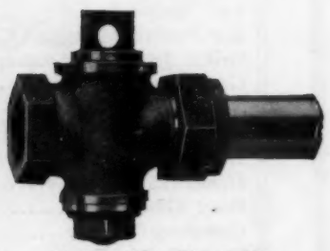
G-211—Flat Head Key

G-401—Flat Head Key



G-203
Tee Head Standard

G-475
Thumb Head Key



G-451—Flat Head Key

We would be pleased to furnish quotations. In asking for quotations kindly state the weight of the gas cock and the number required. Also when they are to be delivered.

KITSON COMPANY

Office and Factory

Westmoreland and Stokley Streets

PHILADELPHIA, PA.

District Representatives: Baltimore, Chicago, St. Louis, Boston, Brooklyn, Cincinnati, Cleveland, Detroit, Pittsburgh

Makers of Meter and Service Gas Cocks for T irty Years

A Dependable Source of Supply

One place on earth

SEARCH the world over for the best gas coal deposits—compare the values of each and standing preeminently among them will be STANDARD YOUGHIOGHENY GAS COAL—mined in the heart of the famed Youghiogheny Gas Coal Region.

The Gas Industry of the United States is particularly fortunate in having right at hand this wonderful coal. It not only yields the greatest volume of high calorific gas but is equally noted for its full yield of valuable by-products such as ammonia, tar, benzol, toluol, etc. From it no finer grade of coke can be made.

And back of every ton of STANDARD YOUGHIOGHENY is the preparation and service facilities of one of the world's largest commercial coal producers.

Let us serve you

PITTSBURGH COAL COMPANY

PITTSBURGH, PENNA.

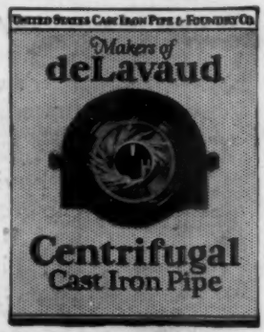
Standard Youghiogheny Gas Coal

The Anthony joint is easily and quickly set up. It requires no special tools, no protective coating and it lasts indefinitely. Anthony joint pipe can be furnished in 24-foot lengths made up of two standard lengths welded and tested under ideal conditions at our plant.

"The life of the coupling itself is, of course, the main point". . . . . *(Report of a Gas Company to Sub-Committee on Pipe Joints—A.G.A. Convention 1927)*

THE report quoted above goes on to say, "This has led to our viewing the Anthony joint of the U. S. Cast Iron Pipe & Foundry Co. with much interest as this joint gets away from most of this doubt." Since this statement, another year of experience is back of the Anthony joint. Additional facts are available. While it is still too soon to claim that deLavaud pipe with the Anthony joint has overcome every high-pressure gas transmission problem, this much can be said:

So far, the Anthony joint has demonstrated (1) *unusual flexibility,* (2) *freedom from leaks under service pressures as high as 90 to 125 lbs.,* (3) *resistance to vibration,* (4) *freedom from corrosion.* And, of course, it has all of the age-defying quality of cast iron, plus low cost installation.



We will be pleased to furnish the latest facts on installations of deLavaud pipe and any further data which you may desire to have on file regarding this important development in gas transmission.

United States Cast Iron Pipe and Foundry Company

General Offices:
Burlington, New Jersey

Philadelphia: 1421 Chestnut St.
Chicago: 122 So. Michigan Blvd.
Birmingham: 1st Ave. & 20th St.
Buffalo: 957 East Ferry Street
Cleveland: 1150 East 26th Street
New York: 71 Broadway

San Francisco: 3rd & Market Sts.
Pittsburgh: 6th & Smithfield Sts.
Dallas: Akard & Commerce Sts.
Kansas City: 13th & Locust Sts.
Minneapolis: 6th Street & Hennepin Avenue